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LECTURES

ON

DISEASES OF THE BRAIN AND NERVOUS SYSTEM,

NOW IN THE COURSE OF DELIVERY IN THE UNIVERSITY OF PARIS.

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LECTURES II. & III.

CONGESTION OF THE BRAIN.

GENTLEMEN,—In our last lecture I insisted at some length on the various difficulties which present themselves in the study of diseases of the nervous system, and endeavoured to explain the nature of those obstacles, at the same time pointing out some of the principal means by which they may be overcome. I shall now enter at once into the history of diseases of the central nervous system, by which we mean the brain and spinal marrow. Let us commence with lesions of the circulation, and, first, with hyperemia, the most simple form. After congestion, we shall take up the history of inflammation, then pass to anemia, and, finally, terminate this portion of our subject with hemorrhages of the brain and spinal marrow. Such is the method we propose to adopt. As for inflammation of the meninges, it occupies our attention when we describe the diseases of serous membranes in general, we shall not, therefore, refer to it during the present course.

Anatomical Forms of Cerebral Hyperemia.

Hyperemia of the substance of the brain, or, in other words, cerebral congestion, is a very common disease of the nervous system, and the different forms under which it may present itself are numerous and various. It may be general, occupying the whole mass of the cerebral substance; or partial, that is, confined to a certain circumscribed portion of the brain. It may, again, attack simultaneously both hemispheres, or it may be confined to only one, and this latter circumstance is not of very rare occurrence. When thus limited, the hyperemia very often gives rise to symptoms closely resembling those of cerebral hemorrhage, from which it is almost impossible to distinguish it. In some cases the congestion is bounded to a single fraction of the hemisphere, and, finally, cases have been observed where the injection was confined to one of the cerebral lobules. Thus you see, gentlemen, the phenomenon which now occupies our attention may follow exactly the anatomical divisions of the organ that is the seat of the malady. This is a curious circumstance, and not confined to the brain alone. How frequently do we observe the same thing in the lungs, where the inflammation sometimes occupies both sides of the chest, sometimes attacks but a single lung, at other times affects one lobe, or, finally, as in the lobular pneumonia of children, may be confined to the ramifications of a single bronchus! These are not the only divisions of cerebral hyperemia; it may attack more particularly either the gray or the white substance, the congestion existing at some point of the surface of the brain, or being situated more or less deeply towards the centre of the organ. Hyperemia of the nervous centres may also be found in other parts of the brain: thus, it is not rare to observe a greater or less congestion of the pons varolii, or of the cerebellum; and in this latter organ, as in the cerebrum, the congestion may occupy the middle, or either of the lateral lobes. Finally, the spinal marrow alone may be affected, either generally, or at any one point, from the protuberance to its termination in the cauda equina.

Here let us first examine briefly the anatomical characters of cerebral hyperemia; they are, in most cases, sufficiently well marked. The coloration of the cerebral substance in cases of hyperemia is of two kinds, presenting,—1st, either a uniform redness—or, 2nd, a reddish colour from a number of small red points that occupy its substance. These two forms again differ, as they may occupy the white

or the gray cerebral matter. The spotted redness (*rougeur pointillée*) is most remarkable in the medullary portion of the brain, and when the latter is divided into thin slices, the surface exhibits an immense number of small bleeding points, as if it were scattered over with a quantity of fine red sand. These points are nothing but the orifices of so many divided vessels abnormally injected, and the peculiar appearance has given rise to the term "sandy injection," adopted by M. LALLEMAND and some other writers. This form of injection may be general or partial, and is much more characteristic of hyperemia than the second form, in which the redness is uniform. The gray substance is more frequently the seat of this second form of coloration; however, in some cases it may exist in the white or medullary portion. In the gray matter it presents a great variety of shades, from a deep red, similar to that of mahogany, to a light or delicate rosy tint, and it has been observed to occupy either the substance forming the convolutions, or the gray matter which is disseminated through the different points of the cerebro-spinal mass.

In the greater number of cases of cerebral congestion, the anatomical changes are not confined to the brain alone; its membranes show at the same time more or less marks of hyperemia; the meninges are usually more injected than natural, and the veins of the pia mater in particular are large, and distended with a quantity of dark-looking blood; the sinuses of the dura mater are also engorged, and the whole organ bears marks of the irritation which has occupied it. In some cases we find troubled, sometimes clear, serum in the ventricles, or in the cellular tissue beneath the arachnoid; sometimes, on the contrary, the surfaces of the brain are free from humidity, and the serous membrane in particular seems to be in an abnormal state of dryness. We must attribute the presence of the serosity now alluded to, to an interruption of the circulation through the brain, in a word, to a mechanical cause, and when the congestion has been carried to a very high degree of intensity, we may find not only serum, but blood, effused from the vessels. It is necessary, however, to remember, that the blood is not effused into the nervous pulp, but into the cellular tissue, by which the different parts of the brain and its various fibres are surrounded and supported.

We have now laid before you a rapid sketch of the several anatomical forms under which cerebral hyperemia may present itself, but it is of importance to observe that, in order to determine after death whether the phenomena we witness really belong to true hyperemia or not, you must take into account the two following circumstances. In the first place, you must take into consideration whether the patient has died of an acute or a chronic disease, for in individuals who are rapidly cut off by the former, the different parts of the cerebro-spinal axis are more injected than in those who die at the termination of a chronic malady; thus, in two patients, one of whom has died of acute pneumonia, the other from phthisis, the brain may exhibit very different degrees of injection. In the second place, we should be acquainted with the nature of the individual's death, as, for example, whether he died from asphyxia, &c. In this case we know the injection of the cerebral substance is always well marked, and cannot be regarded so completely as a pathological condition, as if the same degree of coloration were observed in a person who died of a tubercular affection. Finally, we should pay attention to the circumstance that some parts of the brain in a normal state are more deeply coloured than others; thus the gray substance appears much less vascular than the white; the cerebellum than the cerebrum; and, on the other hand, the age of the individual is not without some influence on the degree of injection in different parts of the brain; in the infant the white substance contains more vessels than in the adult; and in the adult more than in the aged person; and hence the brain of old persons, which presents the same degree of injection as that of a child, ought not to be regarded as being in a normal condition.

Influence of Temperature &c. on the Brain.

Let us now turn to the causes which promote the development of hyperemia of the cerebral hemispheres; and, first, as to the *exterior world*. In what manner does the *atmospheric temperature* influence the production of this disease? for, that it has an influence, and a very considerable one, we cannot permit ourselves for a moment to doubt. Experiments made upon animals, and the observation of certain cases in man, prove indubitably that an elevated temperature is one of the most powerful causes of cerebral congestion. Let us then examine, in the first place, the effects of heat. If we take a range of between twenty and fifty degrees (centigrade), and above fifty degrees death rapidly ensues,—if I say we assume this range as representing an elevated temperature, we shall find that in from fifty to forty degrees the economy may either resist the heat, or the individual dies *rapidly*, with all the symptoms of cerebral hyperemia. In from forty to thirty degrees the same phenomena are observed, but the congestion is usually less intense. In some cases, where death has ensued from exposure to a heat at this degree, nothing has been found but a simple congestion of the brain; in others, blood was effused into the substance of the cerebral mass. You will find some interesting examples of this kind in the *Bibliotheque*

Medicale, vol. 70, page 250. In proportion as the temperature descends, the accidents of which we speak become more and more rare. We may observe them at from thirty-five to thirty degrees, but at from thirty to twenty the tendency to cerebral congestion disappears, and within this latter limit its frequency ceases to be in direct proportion to the elevation of the temperature. Thus, gentlemen, an elevated temperature certainly has an influence in the production of cerebral hyperemia. I need only cite in proof the fact, which has frequently been witnessed in the course of very hot summers,—viz. the sudden death of reapers and other individuals employed in collecting in the harvest.

Again, a very low temperature has also a powerful influence in determining congestion of the brain; indeed, we may say a greater one than heat, if we except artificial temperature, and regard only the effects of climate. Thus, in Holland, it has been shown that cerebral congestions are more frequent in winter than at any other season; this has been determined from a statistic of twenty years;* and at Turin, observations made with the same object for twenty-five years lead to a similar result.† Finally, who does not remember the unfortunate history of the retreat of our armies from Russia during a season of unexampled severity? M. Larrey and the other surgeons inform us, that the greater part of the persons who died during that retreat were affected at first with vertigo, stupidity, &c., and then fell into a state of somnolence, followed by coma and death.‡ Persons who pass suddenly from one extreme temperature to another, are also exposed to cerebral congestions.

There are cases in which we see this hyperemia declare itself suddenly, without any known cause, in a number of individuals at the same time, and reign in a manner altogether epidemic. M. Leuret has published some interesting cases of this kind, which you will find in the *Journal des Progrès*, 2nd series, vol. 2. Three individuals were suddenly attacked at Charenton with the symptoms of cerebral congestion; two died, and the substance of the brain appeared excessively injected, without any other alteration: at the same time many other individuals in the neighbourhood presented some slight symptoms of cerebral embarrassment. M. Leuret could discover nothing to explain the circumstance, except a very strong south-west wind, which had prevailed during several days.

With regard to *electricity*, I have very little to say. Observations are wanting to enable us to form a decided opinion; however, we may mention the case cited by a foreign physician, in which electro-puncture was practised; at the moment the needle was placed in communication with the electric fluid, the patient experienced a sensible pain in the head. We may apply the same remark to the influence of light in the production of hyperemia, as we have just done to that of electricity. We do not possess sufficient data to form a judgment; all we can say is, that only one-sixth of cerebral congestions commence in the night.

Effects of Stimulants and Narcotics.

The effects produced by *alimentary substances* on the development of hyperemia, have been considered by some writers as demonstrated; we can conceive how a rich and exciting diet may, by generating a greater quantity of blood in the system, favour a determination towards the head; but we think, that at the same time a predisposition must exist on the part of the individuals. On the other hand, alcoholic drinks have, beyond all doubt, a powerful influence in the production of the congestions under consideration, and we are induced to think that they may act not only sympathetically from the stomach, but also exercise a direct influence on the brain itself: this is the more probable, because after death the odour of alcohol has been found disseminated through the substance of that organ. Narcotics also may have a direct influence in determining cerebral hyperemia; no matter how introduced into the economy, or under what form, as opium, belladonna, tobacco, or prussic acid, we always find after death an identical lesion, consisting in a greater or less hyperemia of the nervous centres. But these congestions have something special in their character, something which prevents us from regarding the anatomical lesion as the whole disease. Observe cases of poisoning produced by narcotics, and you will convince yourselves that the brain must be the seat of modifications, which the scalpel indeed does not reveal after death, but which are proved by the diversity of the nature of the accidents that occur during life. A question which has long occupied physiologists with regard to the action of the substances now alluded to is the following:—"Do the special symptoms produced by each of these substances, depend on the influence each exercises on a special part of the brain?" If we rely on the experiments of several physiologists who are worthy of confidence, we must resolve this question in the affirmative, and believe that opium most readily produces congestion in the hemispheres of the brain, alcohol in the cerebellum, nux vomica in the spinal marrow, and belladonna in the tubercula quadrigemina. This latter fact especially would seem to result from the experiments of M. Flourens: but we must remark, that all these deductions have been drawn from

* Annales d'Hygeine Publique &c., vol. 2, p. 234.
† Annales d'Hygeine, vol. 2, p. 235.
‡ Campagne, vol. 4, p. 137.

animals, and that the observations hitherto made on the human subject, have neither confirmed in a sufficient manner, nor, on the other hand, have disproved, the results at which experimenters have arrived.

Congestion from Causes within the Brain.

Internal causes have a far greater and more extensive influence than agents which operate from the external world; we can discover various conditions of the brain itself that favour in the most evident manner the production of cerebral congestion: thus a forced exercise of the intellect, long-continued and severe study, powerful emotions, such as fear and joy, the passions, &c., may in turn give rise to the several accidents that characterize hyperemia of the nervous centres. It is unnecessary to cite examples in support of this assertion: you will find them in every author; and your experience cannot fail to have furnished more than one proof. *Certain diseases* of the brain, again, have the effect of determining in the organ a degree of congestion which has erroneously been regarded as the cause of the malady itself; as in epilepsy, which disease certainly does not depend upon a simple hyperemy of the brain, although the congestion which accompanies or succeeds each access, may become the cause of certain accidents that we observe in epileptic patients. It is on this principle that we would explain the comatose state which often persists for a greater or less period after the access; the troubles of intelligence, delirium, &c.; certain disorders of movement, as paralysis, contraction of the muscles; and, finally, various other symptoms of cerebral derangement. Accidental products in the brain, as tubercles &c.; the cysts which succeed on old apoplectic effusions, hydatids, and several other products of the same kind, may all act as so many centres of irritation, and give rise from time to time to an hyperemy, varying in intensity and extent according to the cause which produces it. When congestions take place round the foreign bodies, as we may so call them, two orders of symptoms arise; the first are often permanent, and depend on the presence of the accidental product. The second are intermittent, like their cause, and are produced by an occasional congestion round the point of irritation. It is thus that we would account for the intermittent convulsions of children affected with tubercles of the brain, giving rise from time to time to accesses of hyperemia, and this is a remarkable example of intermittent phenomena produced by a permanent organic lesion. Finally, the different degrees of *meningitis*, especially when the disease is chronic, may often give rise to corresponding congestion in the neighbouring portion of the cerebral hemispheres.

From Derangements in other Organs and Systems.

The *causes external* to the brain are next in order. The influence exercised by the different organs, whether healthy or in a state of disease, on the production or relapse of cerebral congestions, merits our attention. And first for the digestive tube.

We may affirm, without danger of error, that certain acts of the *stomach* may occasion the development of cerebral congestion, particularly in individuals who are predisposed: thus, a too active function of digestion has more than once been the cause of relapse. May we not refer the sleepiness affecting certain individuals after a full meal, to a slight degree of the same congestion? A *pathological condition* of the stomach does frequently, and beyond all doubt, exercise a manifest influence in the production of cerebral hyperemia. Thus, in childhood, acute inflammation of the stomach and bowels may be accompanied by accidents that announce the existence of congestion in the brain; however, though we are willing to allow the cerebral effects of excitation in the digestive tube, all we shall say, with respect to typhus fever, is, that here possibly the inflammation of the mucous membrane *may* be the cause of cerebral congestion, as it frequently accompanies that disease.

A *chronic affection* of the *intestinal canal* may likewise produce congestion of the brain; but much more rarely than acute gastro-enteritis; however, we cannot doubt its influence in some particular cases. Thus I have had occasion to treat a lady, in whom the ingestion of alimentary substances in too great quantity invariably gave rise to cerebral symptoms; the face became coloured, she was affected with severe headache, ringing in the ears, weakness and numbness of the arm, and even loss of memory: these symptoms sufficiently indicate an excess of blood in the brain, and what is remarkable, they never appeared except in consequence of some error of regimen. In another case, that of a patient labouring under chronic gastritis, every time the affection of the stomach became exasperated, the patient was seized with paralysis of the arm.

Irritation of the small intestines may also be arranged amongst the undoubted causes of cerebral hyperemia. Who is unacquainted with the effects of prolonged constipation in determining the blood towards the brain?

The *circulatory apparatus* may, also, by its various conditions, produce different degrees of cerebral congestion. It is easy to conceive how the various degrees of force with which the blood is carried to the brain may influence the development of hyperemia in that organ. We have frequent opportunities of seeing patients subject to violent palpitations of the heart, in whom each accelera-

tion of the circulating medium is accompanied with giddiness, ringing in the ears, and other symptoms of congestion in the brain. Again, any obstacle to the free return of blood from the head may give rise to a similar result. Sometimes the impediment exists within the cavity of the cranium; the researches of Dr. TONNELLE prove in a striking manner the coincidence of hyperæmia, and even cerebral hemorrhage, with an obliteration more or less ancient of one of the sinuses of the dura mater. (*Journal Hebdomadaire*, April 1830.) M. GINTRAC, of Bordeaux, has related a case in which the congestion was caused by an obliteration of the longitudinal sinus. A tumour pressing on the jugular vein may also become a cause; and the congestion observed in malefactors who have been hanged, evidently depends on the same circumstance, viz., a mechanical obstacle to the free return of blood from the head. A change in the circulation of the brain is often produced by very slight causes: thus in some individuals, a mere change of position from the vertical to the horizontal posture, and *vice versa*, is enough to occasion vertigo, and some persons can never get up or lie down in bed without experiencing a similar sensation.

The disease termed *apoplexy of new-born children* may be, in most cases, attributed to an obstruction of the venous circulation from the brain; and instances are on record where death has been produced by the pressure of the chord round the child's neck, causing a fatal congestion of blood. Finally under this head, we may arrange the effects of certain violent efforts, such as the act of vomiting, defecation, &c.

The different *organic diseases of the heart*, which oppose the free return of blood from the head, or by turns retard and accelerate the circulation in a remarkable manner, must also be ranged amongst the causes that give rise to cerebral hyperemy. Nor are we to neglect the influence evidently produced by simple acceleration of the circulation during the course of ordinary or intermittent fevers. We cannot certainly explain in any other manner the headache, giddiness, pains in the limbs, &c., which accompany every access of fever at all well marked.

The development of cerebral congestion is also favoured by the existence of *inflammation in some other organ*. You know that congestion forms one of the elements of inflammation, and this element may be repeated in the brain under three different circumstances, which we shall now enumerate. 1st, Before the inflammation takes place in the organ; as for example, in measles, small-pox, and scarlatina, when we frequently observe the existence of delirium, convulsions, or coma, during the febrile access that precedes the appearance of the cutaneous inflammation. 2nd, At the same time as the inflammation; witness erysipelas of the scalp and face, which is often fatal, with cerebral symptoms, leaving no other trace of lesion in the brain, than an hyperemy more or less well marked. 3rd, The symptoms of congestion may set in after the inflammation has completely disappeared; of this we may cite examples in the congestions that follow the disappearance of a cutaneous malady, the sudden retrocession of erysipelas of the face, &c.

There are, again, cases in which we in vain seek the cause of cerebral congestion in the access of intense fever, or in the inflammation of another portion of the body: here it depends on a certain congestional diathesis, if we may so use the expression,—on a *morbid condition of the system*, in which the different organs become in turns congested. We have seen cases where the nasal fossæ, the uterus, the lungs, the intestinal canal, and the brain, have shown symptoms of congestion, one after the other, without our being able to discover any thing in the patient's constitution or mode of life to explain this singular phenomenon. Having thus studied the effects produced by various conditions of the solids, we may ask ourselves whether the *quality* of the blood exercises any influence on the production of symptoms of hyperemia of the brain. We cannot doubt but that persons whose blood contains a great deal of fibrine and colouring matter, in a word, individuals endowed with what is called a sanguineous temperament, are predisposed to cerebral congestions; but on the other hand, the absence of this temperament by no means ensures a patient against the dangers of hyperemia, a disease which, as you have seen, may be occasioned by so many other causes.

Affections of the *respiratory apparatus* can rarely enter amongst the causes of congestion of the brain; we can only admit them as such when they produce an obstacle to the circulation, as in asphyxia or croup, and then they are to be ranged under some of the categories already mentioned.

With regard to the *secretory apparatus*, I may observe, that when in a normal state, the different secretions do not seem to exercise any remarkable influence in favouring the development of the disease which now occupies our attention. However, in certain morbid conditions, as for example, on the suppression of a discharge to which the economy has been for a long time accustomed, they may undoubtedly give rise to a determination of blood towards the head. Some writers have greatly exaggerated the effects arising from the stoppage of suppuration, whether once artificially excited, or originating in an accidental lesion. Although I would not deny that such effects may sometimes take place, I am inclined to think that much greater value has been attributed to this circumstance than it really deserves.

The *genital apparatus* is the last whose influence in cerebral congestion we have now to examine. The reproductive organs, gentlemen, give rise to frequent derangements of the circulation in the brain, as well as in several other parts of the economy; this is particularly seen in young females as they approach the age of puberty. How many accidents dependent on cerebral hyperemy do we witness in young females at the period of their first menstruation! And at the decline of life, when the normal stoppage of the menstrual flux is about to withdraw the constitution from an influence to which it has been habituated for a long series of years, how often do we see the same phenomena repeated! Finally, in suppression of the catamenia, it is not an unusual thing for the patient, at each period, to exhibit the various symptoms that indicate a more or less severe congestion of the brain.

These are circumstances, gentlemen, that you should never neglect in practice; and above all things, watch with anxiety and care the signs of congestion towards different organs, particularly towards the chest, in some young girls, at each period of menstruation; be on your guard here, I say, or you may render yourselves culpable of a fatal neglect; for in too many cases, the periodical determination to the thoracic viscera awakens a latent disease, which, when once advanced, leaves the patient without hope, and medicine without a resource. The different degrees of intensity with which an individual may abandon himself to the generative act, also enter amongst the causes of cerebral hyperemia. Thus an abuse of venereal pleasures may become a curse, and, on the other hand, a similar effect may arise from complete abstinence.

With regard to the influence of age, I may observe, that individuals at every period of life, from infancy to decrepitude, are subject to the disease which has just occupied our attention; but we do not think it proved, as many writers have advanced, that cerebral congestion is most common in old age. We have collected numerous examples in children of the tenderest infancy, and think the only conclusion warranted by facts is, that the maximum of intensity may be placed after the age of forty.

We have now, gentlemen, touched upon some of the principal causes which give rise to congestion of the centre of the nervous system; and in reviewing them, with the design of adopting some general classification, we find that they may be comprised under three heads. Thus many cases of congestion of the brain are evidently produced under the influence of certain mechanical forces, and this is a circumstance which can be very readily understood. Other causes act by producing a modification of force in the circulation of the brain itself; the blood is carried to that organ with greater rapidity and in greater quantities than is natural, and congestion is a frequent consequence of this state. Finally, in other cases of cerebral congestion, we have a diminished activity of the vessels of the brain; the quantity of blood which circulates through that organ is reduced in quantity, and this circumstance often gives rise to functional disorders exactly similar to those occasioned by the presence of a superabundant quantity of blood. Thus, then, we have three species of causes engaged in the production of cerebral congestion; some are purely mechanical, others are active, and others are much less active or are even passive; and the three conditions resulting from the operation of the above-mentioned influences may, with advantage, be distinguished into mechanical, active, and passive hyperemia.

The Symptoms of Cerebral Congestion.

Having thus taken a brief review of the causes of cerebral congestion, let us now, gentlemen, pass to a consideration of the symptoms accompanying the disease. These are extremely different in different cases, and vary according to a multitude of circumstances which it is not always in the power of the physician to seize; we may, however, lay it down as well established by observation and experience, that the symptoms of cerebral congestion vary according to three principal circumstances: the first is the intensity of the lesion, which produces a variety in the symptoms of all diseases in general; the second is the duration of the congestive state; thirdly, and finally, the symptoms vary according to the diversity of the points of the nervous system which may be affected. These are the three main circumstances, gentlemen, according to which the symptoms of cerebral hyperemia are at one time well marked, at another obscure, and present the great diversity of appearances which render it so difficult in many cases to form a certain or correct diagnosis in diseases of the nervous system. With regard to the last circumstance, namely, the diverse points of that system in which congestion may exist, we are compelled, for the sake of order and clearness, to study, separately, congestion as it may occur in the cerebral hemispheres (or brain), in the cerebellum, and in the spinal marrow. The first of these may present itself under a variety of forms, each of which we shall describe apart, and endeavour to point out the most striking characters by which it is distinguished from the others.

First Variety of Cerebral Congestion.

In the *first* form of congestion to which we now direct your attention the great functions of the brain remain intact, the intelligence is clear, the reasoning power undisturbed, the memory and other faculties unaltered: this is the most simple and least dangerous form indeed the only symptoms

we observe may all be referred to lesions of the sensibility, which is but slightly deranged. The principal modifications of sensibility characterizing this simple form of hyperemia are, pain in the head, which is sometimes carried to a very severe extent; vertigo; ringing or singing in the ears, momentary aberration or loss of sight, giddiness, &c. The locomotive powers are at the same time variously affected: in some cases you find the movements executed with dulness and evident disinclination; the patient is heavy and inclined to sleep; while in others he is tormented with a constant desire of exercise, he is constantly on his legs, and cannot rest for a few moments without experiencing a troublesome feeling of anxiety and restlessness; in other cases, again, you will remark nothing but some fourmillemens in the limbs, or sometimes about the face. In certain cases the local symptoms seem to affect especially the circulatory apparatus. At the same time that the patients present many of the symptoms of cerebral congestion, they are attacked with frequent and violent palpitations of the heart, throbbing of the arteries, &c.; but observe, gentlemen, that these palpitations may occur under two very different circumstances, which it is of some importance to distinguish; in one the trouble of the heart and circulatory apparatus is evidently dependent upon the derangement which has taken place in the nervous system, because it does not manifest itself until some time after the symptoms of congestion in the brain; in other cases, on the contrary, the palpitations are connected with some condition of the heart or vascular system, giving rise to increased energy of action in that organ, and subsequently to congestion of the cerebral vessels. The influence of this latter cause is manifest in a great number of cases which we have witnessed. We have frequently seen individuals in whom any slight augmentation of the palpitations to which they were ordinarily subject, was constantly attended with giddiness, vertigo, singing in the ears, or even a well-marked sensation of numbness in the extremities of the fingers. Hence we are compelled to admit that in a certain number of cases the palpitations of the heart, to which we have just alluded, may either follow the derangement in the nervous centre, or be the cause of congestion, by the increased force with which the blood is sent to the brain. It is unnecessary for me to point out the importance of this distinction in a practical point of view.

When congestion of the cerebral hemispheres is carried to any remarkable degree of intensity, the symptoms become more general, and the economy at large seems to partake in some measure of the disturbance in the brain. The temporal arteries now beat with considerable force; in some cases so violently that their pulsations may be recognised by the eye as well as the touch; the cheeks are suffused with a brilliant red colour; the vessels of the ocular conjunctiva become injected; even the forehead sometimes partakes of the coloration of the face, and the whole veins of the head show marks of congestion; the small and large branches are equally distended with blood. In this state of the circulation hemorrhage may take place from the vessels of the nares, and dissipate all the unpleasant symptoms; or congestions may form in various other parts and organs of the body, giving rise to a number of secondary accidents; for, like most other diseases, cerebral congestion may exist singly, or be complicated with a variety of other lesions.

The species of cerebral hyperemia which now occupies our attention may present itself under two varieties, according as it is accompanied by signs of febrile reaction or not,—according as it exists with what is called inflammatory fever, or is not attended with any symptoms of general derangement of the circulation. In the first case, when congestion of the brain is attended with fever, its duration is generally very limited: in the second, its duration is indeterminate. Thus, in some cases, the disease does not seem to exist beyond a few hours, after which the headache, giddiness, and other symptoms, completely disappear. In other cases, the signs of cerebral hyperemia may continue with little or no intermission for several months, or even for whole years together; thus, I have seen patients who showed the first symptoms of congestion in the head, at the age of twenty, and still continued subject to more or less severe attacks, up to the age of forty, fifty, or fifty-five, or even during the whole life. The duration, then, of this disease is very uncertain, and may, in certain cases, be prolonged to a great length of time. Sometimes the congestion is, as it were, permanent, the patient is constantly affected with giddiness, pain in the head, noise in the ears, &c.; but more frequently it becomes suspended for an uncertain period of time, and then returns under the influence of causes which we can occasionally appreciate, but which in many cases escape discovery altogether.

Congestion of the brain is a disease of very frequent occurrence, and when once a patient has been affected with it, the chances that he has it again are very numerous; the period of relapse is, as we have just noticed, at one time uncertain; at another, the congestion recurs at fixed periods, at the change of life, as it is called, at certain changes of season, &c. I remember the case of a patient who, during the course of several years, was attacked towards the end of every winter with symptoms of severe congestion of the brain. The accidents per-

sisted from twelve to fifteen days, and then went off, to return again at the same period on the following year. In some cases the periods of relapse are so regular that the disease bears all the characters of an intermittent fever, so far at least as periodicity is concerned; and on examining authors you will find examples in which the access simulated that of a quotidian or a tertian ague. Mead has left us the history of a man who fell down in a fit of apoplexy every year about the month of March; sensation and motion were completely lost for a few minutes, after which the individual returned to himself, but for ten or twelve minutes more he was unable to speak, and was affected with a trembling motion of the right arm; these symptoms were quickly dissipated, and the patient recovered the use of all his functions. When the return of the congestive state takes place at short intervals, it constitutes what many authors have called "intermittent apoplexy," a form of disease of which I myself have witnessed some very striking examples, and which often gives way rapidly under the administration of quinine in elevated doses.

This first and simple form of cerebral congestion may be succeeded by various others, or if it be prolonged for any considerable period of time, it may give rise to hemorrhage into the substance of the brain, or ramollissement, but in the majority of cases it may be dissipated by the assiduous employment of means which we shall have occasion to notice presently: its characteristic marks are, the intelligence intact, sensibility but slightly modified.

Second Variety of Cerebral Congestion.

Let us now take up the *second* form of congestion of the cerebral hemispheres. In this variety of the disease, the individual, either after having suffered for a greater or less period from giddiness, confusion of sight, and other symptoms of congestion, or without having previously experienced any of these accidents, suddenly falls down, deprived of all consciousness. This form of the malady is hence called a "coup de sang," and is characterized, as we have just said, by an instantaneous loss of consciousness, with or without previous symptoms. The patient suddenly falls to the ground, deprived at once of intelligence, of motion, and of sensation, as if hemorrhage to a considerable extent had taken place in one of the cerebral hemispheres; however, it is distinguished from this latter affection by the circumstance that it is very rarely accompanied by hemiplegia; the symptoms connected with locomotion, in cases of cerebral hyperemia, are much more frequently those of general paralysis than hemiplegia. Sometimes, however, although the individual lies without motion and consciousness, the limbs are not, properly speaking, struck with paralysis. When raised up they do not fall down in that dead helpless manner which distinguishes palsy, but may even remain elevated.

In the second form of cerebral congestion death may suddenly take place; the coup de sang carries off the individual as rapidly as an access of apoplexy; in other cases the attack may last for some hours; the patient may remain in a comatose state from a few minutes to twenty-four or thirty hours; nothing is more variable. Finally, in other cases, the accidents go off by degrees; the intelligence, motion, and sensation, are gradually re-established, and, after a lapse of time which varies as much as the duration of the attack itself, the patient is restored to the full enjoyment of his health. It is astonishing to see how rapidly the recovery may take place from a state in which the patient has lain, perhaps for a considerable time, without consciousness, power of motion, &c.,—in a word, with all the symptoms of an apoplectic stroke; yet such a case frequently occurs in practice; and we find the individual, whom we left labouring under the most alarming symptoms, restored to perfect health, without any lesion of movement or sensation being left behind. In cases of this kind, we are certainly forced to admit the existence of simple hyperemia of the cerebral substance; we cannot for a moment imagine that actual hemorrhage has taken place, for the sudden and perfect recovery of the functions is quite incompatible with the latter supposition. General paralysis, then, as contra-distinguished from hemiplegia, or loss of motion in one side of the body, is the characteristic symptom of the form of cerebral congestion which we have just now described under the familiar denomination of "coup de sang."

I said that the patient sometimes recovers unexpectedly from the state of coma into which the undue determination of blood to the brain has plunged him; this is not always the case; on the contrary, the accidents often persist in a greater or less degree, and consist in lesions of the intelligence, of motion, or of sensation, the three great functions of the life of relation. Thus, after the patient has recovered from the first alarming effects of the coup de sang, the intelligence often remains dull and obtuse; the patient has an air of stupidity, or looks frightened; he is unwilling to be disturbed, or to walk about; in some cases, even, we observe delirium; these symptoms may persist for four, five, or six days, and then the patient recovers the full exercise of his intellectual faculties. The sensibility may likewise remain affected; the patient conserves for some time a sensation of numbness in different parts of the body; in the extremities particularly; he is tormented with prickings in the limbs; in other cases severe headache is the only symptom which

remains, and this may persist with some intensity for a considerable length of time. Finally, gentlemen, certain patients present merely a derangement in the organs of locomotion; thus some are affected with weakness of the limbs, incapability of executing with force the ordinary movements, and this is remarked especially in the abdominal extremities; others are unable to speak clearly for some time after the coup de sang; the impression seems directed entirely to the muscles of the tongue, and articulation is consequently imperfect and embarrassed; this latter symptom is frequently observed as a consequence of simple congestion of the brain; however, when the accidents which we have just enumerated persist for any length of time, we have reason to conclude that something more exists in the centre of the nervous system than mere congestion; the obstinacy of the secondary symptoms would indicate the presence of a permanent cause—viz. cerebral hemorrhage.

Third Variety of Cerebral Congestion.

Let us now turn to the *third* form or variety under which hyperemia of the brain may present itself. In this form we observe precisely the same accidents of intelligence, motion, and sensation, as in the former one, but we have something more than the general resolution of the limbs, which we give as the characteristic mark of the second variety; we here remark a phenomenon that connects cerebral congestion with hemorrhage—viz. hemiplegia, and this circumstance frequently gives rise to great difficulty in the diagnosis. I have seen patients struck with the coup de sang who suddenly became hemiplegic, and presented a combination of all the symptoms that are produced by cerebral hemorrhage, but these were dissipated in a short time by the ordinary means; here we cannot admit the existence of hemorrhage into the substance of the brain; it is impossible to conceive that a clot of blood should be removed in a few hours; the accidents can only be attributed to congestion, and we are compelled to allow that a symptom which is almost exclusively attached to effusion of blood into one of the hemispheres, may also present itself in conjunction with a simple determination to the head. This sort of paralysis is often seen after attacks of epilepsy, where the congestion which accompanies or succeeds the disease, frequently gives rise to certain disorders of movement; and, independently of the rapidity with which these accidents disappear, we have further reason for referring them simply to congestion, from the fact that the state of the circulation in the brain during the access, not unfrequently leaves traces of its effects on the patient's countenance. Thus, in some cases, the patient presents small ecchymoses on the conjunctiva, cheek, or forehead, which disappear in three or four days. Hence, whenever the accidents which succeed an attack of the kind we now describe, do not persist beyond the space of a few days, we may rigidly conclude the absence of any hemorrhage into the substance of the brain.

The hemiplegia accompanying this third form of cerebral congestion may disappear nearly as rapidly as it was produced, or it may continue for an indefinite time after the complete restoration of the intellect and other functions, and in this latter case we must attribute it to something beyond congestion; the persistence of the loss of motion infers the operation of some permanent cause, which is an effusion of blood from the vessels of the brain, that has accompanied or been caused by their state of congestion. The observations which we have just made, tend to establish that hemiplegia is most commonly connected with cerebral hemorrhage, while general paralysis or resolution of the members is more frequently observed with simple hyperemia of the brain; we must not, however, generalize too rapidly, especially in diseases of the brain. The cases published by M. Leuret, show that hemiplegia may exist with nothing but an abnormal injection of the vessels of the brain. I could find, perhaps, fifty similar cases in the science, which demonstrate the same fact, and hence we are compelled to draw a conclusion, which indeed will frequently present itself to us during the investigation of diseases of the nervous system—viz., that functional derangements are not always accompanied by changes of structure appreciable to our senses, and that in the case before us, some impression remains in the nervous system, causing a derangement of locomotion long after the coup de sang has passed away.

I should not forget to mention that in infants and children this form of cerebral hyperemia is chiefly shown by convulsions, and not by the production of general or partial paralysis.

Fourth Variety of Cerebral Congestion.

Now for the fourth variety of congestion. In this form, the intellect remains intact; the only phenomena we observe are modifications of sensibility or motility; and let me here remark to you a fact which is well worthy of attention, namely, that in a great number of diseases of the brain the intellect remains unimpaired amidst lesions which apparently should have produced its complete destruction. Here then we have no loss of consciousness as in the former varieties. The first symptom which shows itself is paralysis, often confined to some muscles of the face, but in other cases extending to the whole of one side of the body. This paralysis often disappears in a rapid manner, a few hours after its production;

and here certainly we cannot attribute it to the effects of cerebral hæmorrhage. Some very curious cases have been published, which illustrate the progress and termination of this form of congestion; perhaps one of the most remarkable is that we owe to M. Gintrac, of Bordeaux,* of which the following is a brief account: "A child, four years of age, had been attacked from birth by an affection which consisted in a momentary suspension of voluntary motion, that came on at intervals; the access was not preceded by any premonitory symptoms. If the child were standing up when seized, his limbs bent under him, the trunk gave way, and he fell down at once on the ground; when in bed, the access was announced merely by a complete relaxation of the muscles. During the attack or fit the senses appeared somewhat dulled, and the sensibility was diminished; the eyes remained open and immovable; the sense of hearing remained; the intellectual faculties were perfect, but the child was unable to utter a single syllable. This child died of some other disease, and on examination, no alteration was found in the brain except the transformation of the superior longitudinal sinus into a hard chord, filled with a solid clot of blood." In this form, then, we have the intellect untouched, we have some modification of the locomotive power, and we have, finally, a suspension of some of the senses, while the others remain free from injury.

Fifth Variety of Cerebral Congestion.

In the fifth variety of cerebral congestion the lesion is chiefly directed to the intellectual faculties. Hyperemia of the brain, in this case, does not produce coma; it does not exercise any very remarkable influence on the movements of the body; the principal phenomenon is the sudden appearance of furious delirium, accompanied by an extraordinary development of muscular force.

This form of the disease is highly dangerous, and frequently compromises the life of the individual. In some cases the delirium is accompanied with so violent a perturbation of the brain that the patient dies in the access, vociferating loudly, agitated in the most severe manner, or making such powerful and long-continued efforts that life becomes extinct in the struggle. I have more than once been struck with the remarkable phenomenon of which I now speak. I have watched the case closely during life, examined the brain after death with the greatest care, and found nothing which could explain the excessive derangement of the intellectual functions, except marks of great congestion in the cerebral hemispheres.

In many cases this form of hyperemia, commencing in extreme delirium, and terminating in coma, or, more frequently, in an access of the most violent muscular efforts, has produced death as suddenly as if the patient had been struck by lightning. The autopsy reveals nothing but a vivid injection of the substance of the brain.

Different Symptoms from Similar Lesions.

These are the principal forms under which cerebral congestion may present itself to us; each you see has its characteristic mark. The phenomena accompanying each form are distinct, and on passing them in review we cannot help asking ourselves these questions,—"How comes it that the same identical lesion gives rise to such a variety of symptoms? Can we discover any principle to reconcile the apparent contradictions we meet with? Can we explain the diversity of functional lesion by a difference in the seat or duration of the organic lesion?" I think that a solution of the questions we have now put is chiefly to be found in the different parts of the brain which are affected; and that observations establish this general rule, that the discrepancy of symptoms which present themselves in the various forms of cerebral hyperemia depends not only on the duration of the malady, but still more upon the seat it may occupy in the central organ of the nervous system; but if you wish to know what particular parts of the brain are implicated when such or such symptoms appear, I must confess my ignorance: the state of the science does not yet permit me to arrive at the solution of this most interesting problem, although we have many excellent reasons for thinking that by it alone we can clear up the difficulties which now pursue us in our study of diseases of the nervous system.

Many attempts have already been made to localize the functions of the brain, but, I regret to say, most of them appear to be premature. Thus we have several observations which tend to establish that sensation and motion chiefly reside in the gray or cortical substance, and that when this portion of the brain is injured, the two properties just mentioned principally suffer. This may possibly be the case, but we have no proof of it, and until something better is offered than conjecture, we cannot think ourselves justified in coming to any conclusions; there are, however, some circumstances which lend it a colouring of probability. When the gray substance of the brain is injured, we certainly have more aberration of the intellect than when the lesion exists in other parts, and from the frequent occurrence of delirium in connection with meningitis, we might, perhaps, conclude that the superficies of the brain is the part destined to the elaboration of the intellectual

* Recueil d'Observations, Bordeaux, 1830.

faculties. We may, in fact, readily understand how the symptoms should vary according as the congestion may occupy the anterior portion of the brain, or the depth of its substance, or the various parts comprehended in the base of the organ. We can easily conceive a difference of external phenomena according as compression may be exercised on the corpus callosum, the thalami, the pons, or the cerebellum; indeed, this ought to be the case, but, unfortunately, experience does not enable us to say how or when. Let us not however be discouraged, but hope for better times; let us examine with greater care, let us observe more, and, above all, collect a greater number of observations; for nothing can be more irrational than the error into which some writers fall of drawing general conclusions from two or three isolated facts, and attempting to explain phenomena before any solid groundwork has been established upon which they can build an hypothesis worthy of confidence or attention.

Affections of the Cerebellum.

The remarks we have hitherto made, refer entirely to one portion of the brain; but there is another part of that organ to which peculiar functions have been attributed, and many authors have thought that pathological observations ought to show whether these functions have justly been attributed to it or not. The part I now allude to is the cerebellum: some physiologists place the power which governs the organs of generation in the cerebellum; others connect it more particularly with locomotion, &c.; but if you examine the observations which are recorded in the different works upon diseases of the nervous system, you must perceive that many of these hypotheses are at least premature, and that we cannot refer to it a great variety of the symptoms which their authors would thus explain.

In some periods of cerebral congestion, we observe a certain number of symptoms which it is very difficult to connect with any particular lesion, or explain by any one of the hypotheses as yet formed; in these cases the individual looks exactly as if he were drunk; he is stupid, his appearance is extraordinary; when he attempts to walk, the organs of locomotion, though still capable of acting, are evidently deranged; his step is vacillating, and progression is performed by him in an imperfect manner and with difficulty. Here is a case in which we might suppose that the lesion was principally situated in the cerebellum, but we cannot affirm this with any certainty. We cannot bring forward any rigorous proof of it; indeed the autopsies which have as yet been made, are far from establishing that in this disordered state of the voluntary motions, the cerebellum is the part of the brain chiefly or solely implicated. The sensibility undergoes various modifications in the different forms of cerebral congestion, without our being able to attach any of its changes more particularly to one form than to another; sometimes it is exalted in a very extraordinary degree; the patient is unwilling to be disturbed, or the least touch produces an acute cry, as if the integuments were the seat of intense inflammation. Here, again, many writers will tell you that the cerebellum is the part of the brain chiefly attacked, but I must confess to you that I do not find this opinion confirmed, either by my own observations, or by an examination of the cases we possess. However, explain it as you will, the fact exists, and is not the less worthy of your attention.

There are also a certain number of facts connected with this part of the subject, of which we shall seize the present opportunity to speak, as they seem to throw some light on a doctrine, which, though not yet established, as I said before, upon proofs, yet has some probabilities in its favour. I have seen patients who at each return of the menstrual period (and in these cases the catamenia are always painful), were affected with more or less severe pain in the back of the head; this phenomenon was constant, and I possess three or four facts of the kind. Again, in one case, each time the individual had connection with a woman, he was seized with violent pain in the occipital region; this symptom constantly followed each act of copulation, and was accompanied by several other signs of cerebral congestion. In relating these cases, gentlemen, I merely give you facts as I have observed them; remember I do not connect them with any hypothesis or explanation. I have also had an opportunity of witnessing a case of priapism in a young man, accompanied by constant and very acute pain in the back of the head; this state lasted for three months, at the expiration of which time, I was sent for to see the patient, who had been suddenly attacked with alarming symptoms. On my arrival, I found him labouring under all the symptoms of acute meningitis. This patient died, and though I had an opportunity of examining the body, the fact is not less certain; besides, the inflammation of the brain was so well characterized, as to leave doubt of its existence. Here, then, are a certain number of cases in which we may presume that congestion of the cerebellum coexisted with a series of symptoms peculiarly connected with the generative apparatus, but I would not here build up any thing on so small a number of observations.

Congestion of the Spinal Marrow.

We now come to congestion of that part of the nervous system which is contained in the vertebral canal. Hyperemia of the spinal marrow is much less frequently met with than congestion of the central portion,

or brain. It may occupy various parts of the medullary column, and for arrangement may be distinguished into congestion of the cervical, of the dorsal, and, finally, of the lumbar portion. The symptoms which are connected with a congestive state of the spinal marrow consist entirely in lesions of movement and sensibility, together with a few that may be referred to derangements of organic life; the brain remains intact, and the intelligence consequently does not present any of those phenomena which so often accompany a similar pathological condition of the cerebrum.

Congestion of the spinal marrow may take place in a rapid manner, or may be formed gradually and slowly; let us first consider the rapid form. Here you may observe three varieties that we should distinguish from one another. In the first we have a special lesion of motility. The patient is suddenly seized with paralysis, which may affect the four extremities at the same time, or be confined to two of them, the superior or the inferior limbs. In some cases, however, which are excessively rare, the loss of motion may exist only in the members on the same side of the body; the patient is attacked with a true hemiplegia, but there you will generally find that the lesion has implicated the brain also, and that the spinal marrow is not the only part of the system which presents traces of congestion. The respiration may be compromised in cases of this kind, from paralysis of the muscles of the chest, of the diaphragm, &c., and the patient may die completely asphyxiated. The symptoms we have just enumerated, are in certain cases also attended with convulsive motions that are partial or general. In the second form of congestion of the spinal marrow the principal lesion is not manifested in the organs of locomotion, but in the sensibility. Sometimes we find a complete loss of sensation in various parts of the body; at others the modification of sensibility is shown by prickings, or a creeping sensation in divers points, by pains in the surface of the skin, or occupying the depth of a member. Finally, in some cases, these pains occupy the trajects of the nervous chords, and then simulate in a very close manner diseases called "neuralgiæ." In the third form we have a simultaneous loss of sensation and motion in the parts which receive their nerves from the portion of the spinal marrow that is affected.

Concluding Remarks on Cerebral Congestion.

These are the three principal forms under which hyperemia of the spinal marrow may present itself. The disease may terminate by death, and that rapidly, when the nerves which supply the respiratory muscles are gravely implicated; more frequently, however, the congestion is dissipated, and a cure ensues. It produces, as you see, a series of symptoms which are almost exclusively connected with sensibility and motility. Its duration is very various; in many cases the symptoms continue for a length of time; in others we have seen patients who presented lesions of sensibility and motion for a considerable period, recover suddenly, and in a most unexpected manner.

You have now seen how congestion of the brain differs in different individuals according to the seat of the lesion, and its duration, and according to the patient's mode of life, occupation, and other causes, which it is the duty of the physician to investigate and estimate. You have also seen how it often terminates in death. When the disease, however, ends favourably, we may sometimes observe at the moment of its termination certain critical phenomena that are also found to accompany the close or decline of other diseases. Thus some patients are relieved from the headache, vertigo, and other symptoms of congestion in the brain, by a copious hemorrhage from the nostrils. This is a phenomenon very frequently observed, and must be familiar to you all. In other cases the unusual appearance of the menstrual flux dissipates the cerebral symptoms; I had a patient under my own care, who exhibited a curious phenomena of this kind. She was frequently subject to attacks of congestion towards the brain, and each time the symptoms gave way on the appearance of a copious flux of serosity from the nose; the quantity of fluid thus discharged was really surprising, and was sufficient to wet three or four handkerchiefs in the course of the day.

Indications of Treatment.

Having thus laid before you, gentlemen, the several forms of cerebral hyperemia, and described the symptoms by which they are accompanied, let us turn to the therapeutic question, and point out the principal indications of treatment. There are three: the *first*, and perhaps I might say the principal, is to combat the cause which has produced or keeps the determination of blood to the brain; this is a point of the utmost importance, and without attention to it your other means will frequently fail; seek, then, I say, the cause of the disease if you would cure the patient. Examine the conditions under which he is placed, his mode of life, of nourishment, his occupations; weigh the influences of air, of season, of the medicaments he may have taken; in a word, direct your first attention to a removal of those causes which promote cerebral hyperemia. We have already treated of this at length, and we therefore refer you to what was then said on the subject.

After a due consideration of the cause, and the means of removing it, the *second* indication which naturally presents itself

is to empty the vessels of the brain or spinal marrow. This is done by copious and repeated bleeding, according to the emergency of the case; the abstraction of blood may be performed with the lancet, or through the medium of leeches. Whenever the symptoms are threatening, the quantity of blood removed, to have any immediate effect, must be large, and I think venesection performed at the arm is preferable to any other mode. I have frequently seen the beneficial effects of this practice in cases where the headache, ringing in the ears, numbness of the limbs, &c., suddenly disappeared after the abstraction of a copious quantity of blood. If the patient have been subject to epistaxis, or any other habitual discharge; if the menstrual period be not far off, in case of a female; if the congestion have appeared in consequence of the repercussion of some cutaneous eruptions, &c., perhaps it may be sufficient to apply a number of leeches behind the ear, to the anus, on the inner surface of the thighs, or even around the malleoli; these, repeated according to the nature and gravity of the disease, frequently dissipate all the symptoms. However, you should not forget that in many other cases, after sanguineous emissions have been multiplied, the signs of congestion persist, or, yielding apparently, and for a short time only, to the loss of blood, they return again with renewed intensity.

The *third* indication is to draw off the afflux of blood, as far as possible, from the brain and spinal marrow; this is done by what are termed revulsives. The older authors contain numerous examples of the benefit derived from this method of treatment, and I have more than once had recourse to it myself with the most decided benefit. The class of medicines called revulsives are particularly indicated when the symptoms of congestion have succeeded the disappearance of a cutaneous eruption, or any chronic affection of the mucous membranes; in cases of this kind you must not neglect the previous existence of an irritation to which the economy has become accustomed. You must take into account the antecedent malady, and must endeavour to call it back by the repeated application of blisters and other similar remedies. Revulsion from the head may be attained by two principal modes of acting: 1st, by acting on the cutaneous surface, by blisters, the seton, actual cautery, and irritating ointments; 2ndly, by acting on the intestinal canal. Purgatives are one of the best means we possess for combating the accidents attendant upon cerebral congestion; I have had frequent opportunities of witnessing their utility, and I consider them even more efficacious than blood-letting in a great variety of cases. You may administer purgatives in two forms, either as drastics, with the object of producing a powerful and instantaneous effect on the surface of the intestinal canal; or in a milder form, but long continued, so as to bring away two or three stools daily for a length of time. The former method we have frequently employed in cases where sanguineous emissions had not been attended with any success; a few drops of croton oil, or some other strong purgative, have been sufficient to dissipate accidents of congestion of a very severe nature, which had that persisted in spite of blood-letting from the arm.

CASES OF

MALIGNANT DISEASE OF THE TESTIS,

IN A CHILD AND AN ADULT.

To the Editor of THE LANCET.

SIR,—The enclosed account of two cases of malignant disease of the testis, was read at the *Hunterian Society*, on Wednesday last. I trust you will find it deserving of a place in your valuable Journal. I am, Sir, your most obedient servant,

GEORGE LANGSTAFF.

2, New Basinghall-street, Dec. 4, 1835.

MEDULLARY SARCOMA IN THE RIGHT TESTIS OF A CHILD TWELVE MONTHS OLD.

The child had from its birth been perfectly healthy, and its body was well developed. When about ten months old, an enlargement was perceived in the right side of the scrotum, which increased rapidly, and had, in the course of two months, acquired the magnitude and figure of a hen's egg.

The tumour had not excited any pain, nor was there any enlargement in the inguinal glands, nor any sign of constitutional disease. Its nature was ambiguous; it was elastic to the touch, but not of that peculiar transparency which characterizes hydrocele in a child. With a view of ascertaining its nature, the surgeon in the country who had the management of the case, thought it prudent to make a small opening, from which a little blood, mixed with a soft brain-like substance, escaped.

A few days after this operation, the child was brought to London, and placed under my care. I examined the tumour attentively, and from its elastic feel and configuration, I was at first inclined to think that there was fluid in the tunica vaginalis; but from its want of transparency, and having been informed of what escaped on paracentesis being performed, I suspected the disease to be of a medullary character.

I must confess, I never observed this disease in the testicle of so young a subject.

Mr. Lawrence was consulted. The point to be decided upon was, whether the disease should at once be removed, or whether a free opening should be made into the tumour, in order to ascertain its structure, before proceeding to the operation of castration. The latter method was pursued, an incision was made, and the tumour was found to be of a medullary structure, and, consequently, of a nature requiring immediate removal. Mr. Lawrence assisted me in the operation. There was considerable hemorrhage from the integumental arteries, which rendered it necessary to tie several of them.

The little patient did not experience the least subsequent ill effect from the severe operation, the ligatures came away, and the wound healed favourably; and in the course of fourteen days the child was sufficiently well to be removed into the country.

On the dissection of the tumour, the following appearances presented themselves:—The tunica vaginalis and albuginea were greatly thickened. The disease had its origin in the gland itself. Upon opening the tunica vaginalis, a tumour of about the size of a cherry was observed projecting from the anterior surface of the testis, and covered by the albuginea, which at this part was much attenuated by the progressive absorption caused by the growth of the tumour, which would shortly have burst into the tunica vaginalis. On cutting into the morbid growth, it was found to be composed of lobules of medullary matter, exactly similar to fœtal brain, which is termed fungus hæmatodes. Not a particle of the natural structure of the testicle could be found, the medullary matter adhered but loosely to the tunica albuginea, which presented the appearance of a dense cyst. The spermatic chord was perfectly natural in structure.

(*Observations.*—As I am, from the result of long experience, led to believe that medullary sarcoma, carcinoma, and scrofula, are congenital diseases, I cannot help fearing that the disease in this case will attack some other viscus in the course of time; an occurrence which I have frequently witnessed. Yet there have been cases recorded where the disease was only local, which I sincerely hope will prove to be the fact in this instance.)

Since writing the history of this case, I have been informed by the professional gentleman who attended the patient after its return into the country, of the death of the child; he has also favoured me with an account of the symptoms after the operation, and the morbid appearances which presented on a post-mortem examination. These I shall briefly relate.

The child appeared to enjoy a good state of health for about four months from the time of the operation being performed. After this period a small tumour, of about the size of a horse-bean, was detected beneath the scalp, near the posterior-superior angle of the left parietal bone. This tumour daily increased, and acquired the magnitude and figure of an apple. It felt soft and pulpy; but when pressed upon, pain was not evinced, and there were no signs of cerebral affection. The health of the child began to decline; the digestive organs became disordered, denoting some visceral affection; the abdomen was tumid, and an enlargement was, by the touch, felt deeply seated in the abdominal cavity. The patient only lived six months from the time the operation was performed.

Autopsy.—On opening the abdomen, a tumour was seen projecting into the cavity, from beneath the posterior surface of the peritoneum. On reflecting this membrane, the tumour was found to be formed by several of the absorbent glands, in the lumbar region, having been converted into medullary tubera. The abdominal viscera were natural in structure, and there were no signs of disease in the mesenteric glands, or in the glandula aggregata in the ileum.

The lungs on the right side were healthy, but those on the left were affected with medullary sarcoma. The brain was examined. On reflecting the pericranium, it was found highly vascular in the situation of the left parietal bone, and that bone was highly inflamed.

There was a tumour, corresponding in size with the one just described, on the internal surface of the parietal bone, which had detached the dura mater to the extent of the arch of the tumour. The arachnoid membrane lining the dura mater, and that reflected over the pia mater, were slightly thickened where the tumour protruded. The brain was natural in structure, and there was not any accumulation of fluid in the ventricles.

The heart was healthy.

The tumour situated beneath the scalp was presented to me by the gentleman who examined the body. The following are the appearances which were noticed on dissecting the morbid parts. The pericranium, which seemed to form the capsule of the tumour, was highly inflamed, as was the dura mater which contained the corresponding morbid enlargement. On making sections of the tumour, it was found to be composed of medullary matter, exactly resembling the testicle I had removed.

The external surface of the parietal bone, where the tumour was situated, as well as the internal, had been slightly acted on by the absorbents, but there was no communication between the tumours, except by the arteries and veins belonging to the pericranium and dura mater.

On opening a portion of the longitudinal sinus, I found the caliber diminished by the protrusion of a part of the tumour on its

external surface, which, in all probability, would, had the child lived a short time longer, have obliterated the canal in that part. I am induced to make this pathological deduction from having a preparation in my museum, where nearly the whole of the longitudinal sinus is obliterated by medullary matter. The preparation was taken from a patient who had been afflicted with fungus hæmatodes in various viscera.

HISTORY OF A MORBID TESTICLE.

In February 1831, Mr. S—, 30 years of age, a married man, requested my opinion respecting an enlargement of the right testicle. He informed me that it had been progressively increasing for nearly twelve months, and had affected his health, though he had had the advice of some of the most distinguished surgeons in London. Various means had been adopted to prevent the progress of the disease, which it is not necessary to describe, as they had no effect in checking the morbid action. Some of the surgeons advised him, as the only chance of saving his life, to submit to castration, which the patient at that time did not wish.

When he consulted me the testicle was of an immense size, and felt very dense and ponderous. There was considerable enlargement of the spermatic cord; the integuments of the scrotum were of a reddish colour, and the veins were greatly distended and tortuous, and meandered over its surface similar to what I have generally noticed in examining fungoid tumours. The inguinal glands were not affected.

Leeches were ordered to be applied frequently; iodine was employed internally and externally, and his digestive organs were well attended to. This plan of treatment, with little variation, was adopted for several months, without producing any good effect. The spermatic cord became greatly distended, and there were all the appearances denoting hydrocele. Paracentesis was performed; the fluid exactly resembled that of a hydrocele in the tunica vaginalis. This operation lessened the distention, as well as the pain which he had experienced; but the fluid soon accumulated again, and the operation was obliged to be repeated a great number of times. A seton was introduced into the scrotum, which occasioned a profuse discharge; this was continued for some time, but as it did not appear to alter the morbid growth of the testicle, it was discontinued. As the health of the patient began to decline, and he had a sallow complexion, it now became a question whether it would be right to propose the removal of the testicle. At this time Mr. Earle saw the patient, and his opinion was, from the appearance of the patient, and the character the tumour presented, that it was a malignant disease, and that it would be proper to get him into a better state of health before the operation was to be performed.

His health did not improve, and the pain became so distressing that he felt desirous to submit to the removal. Sir Astley Cooper was consulted, and his opinion was, that castration should be performed as soon as possible, with a hope of saving the life of the patient.

I performed the operation on the 23rd of April, 1833. The ligatures separated in about a fortnight, and the wound healed favourably.

The patient at this time, November 23rd, 1835, appears to be in good health, and says that he is, in every respect, as vigorous as ever.

Appearances of the Testis and Spermatic Chord.—A pipe was placed into the spermatic artery, and the parts were injected with size and vermilion. On dissecting the spermatic chord, there were seen several large serous cysts, not hydatids. On cutting open these cysts their internal surface was found to be minutely injected, which accounts for the rapid secretion of fluid which so frequently took place. The spermatic artery was very large, and the vas deferens was pervious from its origin at the epididymis. The tunica vaginalis and albuginea were greatly thickened by chronic inflammation, &c., and they were firmly adherent. A section was made of the morbid testis; there were no signs of the natural structure, and there was scarcely any appearance of vascularity. The morbid productions were composed of scrofulous tumours, which occupied the principal portion of the internal part of what had been the natural structure of the testicle. The external surface had all the characteristic signs of carcinoma; and exactly resembled some preparations of scirrhous testicles which I have in my museum.

Observations.—As the morbid structure of carcinoma, medullary sarcoma, &c. &c., and their devastating effects on the constitution, have been so ably described by distinguished pathologists, it would appear almost needless to publish any more on this subject, except with a view to detailing the minute anatomy which tends to elucidate the cause of those morbid changes, and the tissues which they affect, and this I hope will shortly be satisfactorily given by my friend Mr. Kiernan.

My motive for wishing to publish these two cases is, to show, in the first case, the early development of the disease,—its occurrence in a child, which appeared to be, otherwise, in perfect health,—and to point out the singular circumstance of its affecting so many other parts of the body, so soon after the operation,—a fact which proves what I have frequently asserted, viz. that malignant diseases and scrofula are congenital.

Mr. Lawrence was consulted. The point to be decided upon was, whether the disease should at once be removed, or whether a free opening should be made into the tumour, in order to ascertain its structure, before proceeding to the operation of castration. The latter method was pursued, an incision was made, and the tumour was found to be of a medullary structure, and, consequently, of a nature requiring immediate removal. Mr. Lawrence assisted me in the operation. There was considerable hemorrhage from the integumental arteries, which rendered it necessary to tie several of them.

The little patient did not experience the least subsequent ill effect from the severe operation, the ligatures came away, and the wound healed favourably; and in the course of fourteen days the child was sufficiently well to be removed into the country.

On the dissection of the tumour, the following appearances presented themselves:—The tunica vaginalis and albuginea were greatly thickened. The disease had its origin in the gland itself. Upon opening the tunica vaginalis, a tumour of about the size of a cherry was observed projecting from the anterior surface of the testis, and covered by the albuginea, which at this part was much attenuated by the progressive absorption caused by the growth of the tumour, which would shortly have burst into the tunica vaginalis. On cutting into the morbid growth, it was found to be composed of lobules of medullary matter, exactly similar to fœtal brain, which is termed fungus hæmatodes. Not a particle of the natural structure of the testicle could be found, the medullary matter adhered but loosely to the tunica albuginea, which presented the appearance of a dense cyst. The spermatic chord was perfectly natural in structure.

(*Observations.*—As I am, from the result of long experience, led to believe that medullary sarcoma, carcinoma, and scrofula, are congenital diseases, I cannot help fearing that the disease in this case will attack some other viscus in the course of time; an occurrence which I have frequently witnessed. Yet there have been cases recorded where the disease was only local, which I sincerely hope will prove to be the fact in this instance.)

Since writing the history of this case, I have been informed by the professional gentleman who attended the patient after its return into the country, of the death of the child; he has also favoured me with an account of the symptoms after the operation, and the morbid appearances which presented on a post-mortem examination. These I shall briefly relate.

The child appeared to enjoy a good state of health for about four months from the time of the operation being performed. After this period a small tumour, of about the size of a horse-bean, was detected beneath the scalp, near the posterior-superior angle of the left parietal bone. This tumour daily increased, and acquired the magnitude and figure of an apple. It felt soft and pulpy; but when pressed upon, pain was not evinced, and there were no signs of cerebral affection. The health of the child began to decline; the digestive organs became disordered, denoting some visceral affection; the abdomen was tumid, and an enlargement was, by the touch, felt deeply seated in the abdominal cavity. The patient only lived six months from the time the operation was performed.

Autopsy.—On opening the abdomen, a tumour was seen projecting into the cavity, from beneath the posterior surface of the peritoneum. On reflecting this membrane, the tumour was found to be formed by several of the absorbent glands, in the lumbar region, having been converted into medullary tubera. The abdominal viscera were natural in structure, and there were no signs of disease in the mesenteric glands, or in the glandula aggregata in the ileum.

The lungs on the right side were healthy, but those on the left were affected with medullary sarcoma. The brain was examined. On reflecting the pericranium, it was found highly vascular in the situation of the left parietal bone, and that bone was highly inflamed.

There was a tumour, corresponding in size with the one just described, on the internal surface of the parietal bone, which had detached the dura mater to the extent of the arch of the tumour. The arachnoid membrane lining the dura mater, and that reflected over the pia mater, were slightly thickened where the tumour protruded. The brain was natural in structure, and there was not any accumulation of fluid in the ventricles.

The heart was healthy.

The tumour situated beneath the scalp was presented to me by the gentleman who examined the body. The following are the appearances which were noticed on dissecting the morbid parts. The pericranium, which seemed to form the capsule of the tumour, was highly inflamed, as was the dura mater which contained the corresponding morbid enlargement. On making sections of the tumour, it was found to be composed of medullary matter, exactly resembling the testicle I had removed.

The external surface of the parietal bone, where the tumour was situated, as well as the internal, had been slightly acted on by the absorbents, but there was no communication between the tumours, except by the arteries and veins belonging to the pericranium and dura mater.

On opening a portion of the longitudinal sinus, I found the caliber diminished by the protrusion of a part of the tumour on its

external surface, which, in all probability, would, had the child lived a short time longer, have obliterated the canal in that part. I am induced to make this pathological deduction from having a preparation in my museum, where nearly the whole of the longitudinal sinus is obliterated by medullary matter. The preparation was taken from a patient who had been afflicted with fungus hæmatodes in various viscera.

HISTORY OF A MORBID TESTICLE.

In February 1831, Mr. S—, 30 years of age, a married man, requested my opinion respecting an enlargement of the right testicle. He informed me that it had been progressively increasing for nearly twelve months, and had affected his health, though he had had the advice of some of the most distinguished surgeons in London. Various means had been adopted to prevent the progress of the disease, which it is not necessary to describe, as they had no effect in checking the morbid action. Some of the surgeons advised him, as the only chance of saving his life, to submit to castration, which the patient at that time did not wish.

When he consulted me the testicle was of an immense size, and felt very dense and ponderous. There was considerable enlargement of the spermatic cord; the integuments of the scrotum were of a reddish colour, and the veins were greatly distended and tortuous, and meandered over its surface similar to what I have generally noticed in examining fungoid tumours. The inguinal glands were not affected.

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The second case is only interesting in one part of its pathology, and that relates to the combination of scrofula with carcinoma. This is a rare occurrence, and one which I should term accidental. I have inspected the bodies of a number of patients who have died from the effects of medullary sarcoma, and only in one instance did I find any sign of scrofulous tubercles, and they were in the lungs, and of the miliary kind.

I have seen such unfavourable results after operating for cancerous or fungoid affections, that I have determined never to propose an operation, or again to perform one, in either disease, unless at the particular desire of the patient, and with his consent to abide by the consequences, without reproach against the surgeon.

ON THE

LAW OF MORTALITY

IN

EACH COUNTY OF ENGLAND.

By T. R. Edmonds, Esq., *B.A., of Trinity College, Cambridge.*

(Concluded from page 371.)

In exhibiting the law of mortality of the aggregate population of England, I have gone to the full extent allowed by the materials, and compared the mortality in each of thirteen gradations of age. A comparison to the same extent might have been instituted for each county, but the results would have been less valuable, being founded upon observations of very inferior magnitude. According to the doctrine of chances, the smaller the number of facts, the less correct is the indication of the general law which these facts obey. When the intervals of age are very small, and when the differences between the mortality at consecutive intervals are also small, the true law of mortality is never correctly indicated, unless the facts observed are of immense magnitude. During infancy, the mortality at one annual interval differs 32 per cent. from the mortality of the succeeding annual interval; and on account of this great difference, a small number of observed facts are sufficient to determine the true law at this period. But between the ages of fifteen and fifty-five years, the mortality at any annual interval differs only one-thirtieth part from the mortality of the next annual interval; and we cannot expect to find any materials of sufficient amplitude to indicate correctly these minute differences. By extending the intervals of age observed, we increase the weight by diminishing the number of the results. We also thus increase the differences between the mortality at two consecutive intervals, which is a point of considerable importance. For example, if two consecutive results, when the intervals are small, differ by the amount of 10 per cent., and other two consecutive results, when the intervals are larger, differ by the amount of 30 per cent., a much greater number of facts will be requisite for determining the approximate value of the smaller than that of the larger difference. For reasons of this nature, in comparing together the mortality of different counties, I have extended the intervals, and reduced the thirteen to five gradations of age. I consider that the numbers thus obtained are of nearly equal weight with the numbers obtained for the aggregate population in smaller intervals of age. No useful information has been lost by this proceeding, for I have taken care to draw the lines of division in such a manner as to include the parts most nearly allied to each other. To prevent the possibility of any mistake on this head, I have obtained for nearly all the counties of England, the resulting mortality for each of the thirteen gradations of age. As I have not met with one instance of a decided variation from the scale of relative mortality already exhibited for the aggregate population, there appears to be no reason for desiring the publication of the results for smaller intervals of age than those which I have adopted.

In classifying the different counties of England, I have arranged them principally according to the rate of mortality of females between the ages of fifteen and sixty years. But I have not separated counties in juxtapositon, when the difference in the rates of mortality was inconsiderable. The mortality of males at the same interval of age would not serve as a good index to the healthfulness of a locality, unless we could abstract the detrimental effect of their occupations, leading to fatal accidents, or to loss of health. In many counties, also, the uncertain amount of the military and maritime population, diminishes considerably the value of the apparent mortality of the male sex. Another valuable classification might be made, grounded on the mortality under the age of fifteen years, but much preliminary labour would be requisite, in order to abstract the influence of large towns. For example, the mortality in Devon, under the age of five years, is nearly 25 per cent. greater than in Cornwall, and yet it is doubtful whether the climate of Devon is less favourable to infant life than that of Cornwall. The greater part of the excess may be accounted for by the accident of Cornwall not containing a large town like Plymouth, the mortality of infants in large towns being nearly twice as great as in the adjacent country. A classification more valuable and more complex than that which I now present, may be made hereafter, when much local knowledge has been concentrated on the subject.

TABLE *showing for each County of England the Annual Deaths which occur for every Hundred Living in each of Five Gradations of Age, the Counties being Classified according to the Mortality of Females between the Ages of Fifteen and Sixty Years.*

	Wales and the Forty-two Counties.	Males (without correction).						Females.						
		0-5	5 15	15 30	30 60	Above 60.	All ages.	0-5	5 15	15 30	30 60	Above 60.	All Ages.	Living in 1831.
1	Cornwall	3.59	.50	.79	1.41	7.63	1.82	3.12	.52	.67	1.10	7.18	1.67	133
	Devon	4.55	.53	.82	1.43	7.56	2.04	3.96	.54	.71	1.23	7.12	1.85	231
2	Wales	3.84	.53	.90	1.38	7.50	1.90	3.38	.52	.75	1.25	7.08	1.79	367
	Monmouth	4.23	.49	.76	1.25	7.12	1.79	3.51	.49	.77	1.32	6.82	1.80	35
3	Dorset	3.93	.47	.81	1.25	7.02	1.86	3 32	.51	.85	1.35	7.12	1.81	76
	Somerset	4.34	.56	.80	1.41	7.37	1.97	3.80	.57	.83	1.34	7.09	1.87	185
	Wilts	3.66	.49	.79	1.31	7.21	1.83	3.25	.53	.87	1.40	7.40	1.84	114
	Gloucester	4.24	.55	.83	1.48	6.80	1.91	3.55	.49	.83	1.35	6.50	1.76	175
	Hereford	3.88	.46	.78	1.28	7.66	1.90	3.13	.51	.95	1.36	7.27	1.88	52
	Northumblnd.	3.97	.59	.88	1.38	6.73	1.90	3.35	.54	.74	1.32	6.55	1.72	104
	Cumberland	4.74	.61	.87	1.42	7.68	2.06	4.46	.61	.81	1.35	7.32	1.98	81
4	Westmoreland	3.87	.67	.87	1.30	7.54	1.97	3.49	.58	.93	1.47	7.85	2 03	26
	North York	3.79	.53	.87	1.24	7.30	1.91	3 17	.55	.96	1.34	7.04	1.88	93
	Rutland	4.37	.44	.68	1.31	7.59	1.98	3.84	.55	.93	1.38	7.32	2.01	9
	Norfolk	5.20	.54	.84	1.24	7.21	2.08	4.40	.55	.88	1.31	7.02	1.97	177
	Suffolk	3.73	.45	.81	1.19	6.86	1.78	3.24	.49	.95	1.37	6.83	1.80	138
	Hertford	4.48	.54	.80	1.45	8.22	2.00	4.03	.54	.92	1.42	7.62	1.91	66
5	Durham	5.34	.84	1.15	1.51	7.97	2.38	4.49	.72	.91	1.54	7.53	2.14	109
	East York	5.48	.63	.94	1.38	7.59	2.17	4.66	.60	.89	1.41	7.17	1.98	98
	West York	5.18	.62	.88	1.41	7.38	2.09	4.57	.56	.93	1.48	7.32	1.98	402
	Leicester	5.21	.52	.81	1.33	7.26	2.04	4.38	.51	.91	1.41	7.30	1.95	88
	Lincoln	5.13	.56	.78	1.44	7.39	2.07	4.39	.58	.90	1.45	7.25	1.98	141
6	Salop	4.56	.61	.98	1.52	7.45	2.08	3.91	.57	1.02	1.42	7.37	1.98	104
	Derby	4.38	.56	.92	1.29	7.38	1.94	3.72	.54	1.07	1.50	7.63	1.91	107
	Northampton	4.64	.55	.81	1.32	7.37	2.05	3.97	.63	1.10	1.52	7.49	2.08	83
	Huntingdon	4.72	.57	.84	1.55	7.65	2.09	4.21	.63	1.00	1.52	7.22	2.02	25
	Essex	4.41	.56	.92	1.54	7.88	2.05	3.95	.61	1 06	1.53	7.29	1.97	145
	Bedford	4.17	.58	.78	1.34	7.51	1.92	3.49	.65	1.14	1.58	7.40	1.95	43
	Bucks	4.72	.53	.81	1.34	7.65	2.05	3.98	.63	1.10	1.54	7 96	2.08	69
	Oxford	4.97	.50	.78	1.36	7.82	2.05	4.14	.53	.99	1.47	7.82	2.04	68
	Berks	4.72	.53	.90	1.51	7.99	2.12	4.16	.55	1.05	1.53	7.69	2.08	66
	Southampton	4.43	.55	.99	1.53	7.88	2.10	3.77	.53	.96	1.52	7.68	1.91	145
	Sussex	3.93	.51	.91	1.35	7.16	1.87	3.21	.50	1.08	1.45	7.00	1.79	116
7	Lancaster	6.56	.71	1.04	1.64	7.66	2.40	5.78	.65	1.02	1.73	7.59	2.24	540
	Chester	5.57	.71	1.07	1.63	8.20	2.32	4.78	.68	1.11	1.76	8.22	2.22	137
	Nottingham	6.38	.61	.90	1.41	7.18	2.27	5.37	.62	1.06	1.57	7.04	2.16	95
	Stafford	5.98	.68	1.06	1.60	7.80	2.34	5.43	.62	1.07	1.58	7.41	2.20	169
	Warwick	6.12	.63	.90	1.63	6.16	2.26	5.29	.64	.93	1.53	6.03	2.08	141
	Worcester	5.81	.65	.93	1.47	7.54	2.26	5.21	.62	1.04	1.51	7.21	2.15	94
	Cambridge	5.96	.71	.90	1.63	7.85	2.34	5.08	.71	1.03	1.62	7.85	2.23	62
	Kent	5.60	.66	1.41	2.04	7.82	2.54	4.75	.61	1.02	1.63	7.69	2.11	216
8	Surrey	7.75	.71	1.05	2.12	9.81	2.81	6.40	.69	.92	1.77	8.78	2.41	209
	Middlesex	8.34	.84	1.06	2.46	11.02	3.03	6.77	.78	.83	1.96	10.36	2.53	611
	England and Wales	5.30	.61	.94	1.59	7.77	2.21	4.56	.60	.93	1.52	7.53	2.05	6145

The numbers representing the mortality in thirty-nine counties, have been obtained by increasing the registered deaths one-ninth part. In the case of Wales, Monmouth, Middlesex, and Surrey, the increase has been one-fourth part. The relative weight of each observation is indicated by the additional column representing in thousands the amount of the female population of each county.

The general harmony of the results in the foregoing table, appears to be interrupted in two instances only. In the counties of Durham and Kent, the mortality of males between fifteen and thirty years of age is considerably higher than would be expected. In Durham, the excess may be due to accidents in mines; in Kent the excess may be due to deaths of boatmen, or to the omission of an excessive proportion of military and maritime population. The extremely low mortality above the age of sixty years in the county of Warwick is a deceptive appearance consequent on the omission of the ages of the population of Birmingham, which constitutes one-third part of the population of the entire county. The proportion of living above the age of sixty years is much less in large towns than in the country. If the ages of the inhabitants of Birmingham had been included in the general summary of the county, the proportion living above sixty would have been considerably less, and consequently the true mortality would have been considerably higher than the apparent. A deceptive appearance of a similar nature, though inferior in degree, exists in the counties of Gloucester and Northumberland, in consequence of the omission in the county summaries of the ages of the inhabitants of Bristol and Newcastle.

One of the most remarkable and unexpected results presented by the above table, is the fact that the mortality of females between the ages of fifteen and sixty years is greater than that of males at the same period in all cases excepting Cornwall, Devon, and Wales. The difference would be still greater, if allowance were made for deaths by accident, which are more numerous among males than among females. In Cornwall and Wales, the apparent exception may be due to accidents in mining. In Devon the apparent exception may be due to deaths in naval and military hospitals, and to a very high proportion of unenumerated sailors and soldiers. The counties of Middlesex and Surrey are excluded from comparison, because they are subject to laws of mortality peculiar to large towns. I have already stated my reasons for believing that very little error can have arisen from the understatement of the ages of females. The possible error, in comparing together the mortality of the two sexes, is to be diminished by the compensating effect of a similar though inferior disposition in males to understate their ages. In the above table I have thought it preferable to give the apparent mortality of males between fifteen and sixty years of age, without a necessary correction for the unenumerated military and maritime population. It may, however, be acceptable to state the two classes of counties in which the defects are most considerable. Kent, Surrey, Middlesex, Durham, Cumberland, Northumberland, North York, East York, and Devon, require the largest correction. Lancashire, Wales, Gloucester, Cornwall, Norfolk, Essex, Dorset, and Southampton, require a smaller correction. The apparent results for males from fifteen to thirty, and from thirty to sixty, ought probably to be diminished by the quantity .09 in the first mentioned counties, and by .05 in those last mentioned, the reduction for all England being about .06 at each of these two periods.

In the case of Cornwall, Devon, and Wales, there appears to be some ground for the conjecture, that the relatively high mortality of the male to the female sex, arises from original peculiarity in the constitution of the inhabitants. The proportion of male to female births in these districts, differs very much from the proportion existing in the rest of the observed territory. In these districts also, the mean age at which females attain the minimum mortality, is the same as that for males; whilst in other districts, the minimum is generally attained one year earlier by females than by males. During the twenty years ending with 1830, for every 100 births of females, there were born of males, 110 in Wales, 108 in Devon, and 107 in Cornwall, whilst in the whole of England and Wales, the excess was only 4½ per cent. In Middlesex and Surrey, the excess of male births was only 1½ per cent.; but this affords no ground for inferring that the propertion of conceptions of males was less in London than in the country at large. The mortality in infancy is much greater in large towns than in the country; and it is very probable that the mortality of males before birth, exceeds the mortality of females before birth, according to the same law as exists for the first five years after birth. But in the case of Wales, Devon, and Cornwall, the mortality during the five years after birth, differs very little from the mortality in many counties where the excess

of male births is only half as great. We may hence justly conclude, that the mortality before birth differed very little, and, consequently, that the excess of male conceptions is considerably greater in Wales, Cornwall, and Devon, than in the rest of the territory.

The relative mortality of the male to the female sex, between the ages of fifteen and sixty years of age, appears to be dependent on the mean age at which the period of "infancy" terminates. In nearly all the counties, this period for males terminates at the age of eight years, which is indicated by the fact, that the mortality between five and ten is 50 per cent. greater than the mortality between ten and fifteen years of age. In the majority of counties, this period for females terminates at seven years, as is indicated by the fact, that the mortality at the former exceeds that at the latter interval only 20 per cent. Cornwall, Devon, Wales, and London, are the exceptions to this general rule, the mean terminating age for females being at eight years or above. In these four districts, the relative mortality of males to females is just the reverse of what exists in the rest of the observed territory. The general law appears to be, that when the minimum is attained by both sexes at the same age, the mortality of males exceeds that of females; and that when the minimum is attained half a year sooner by females than by males, the mortality of the two sexes between the ages of fifteen and sixty years of age is equal.

In adopting the mortality between the ages of fifteen and sixty years, as an index to the healthfulness of a locality, I have been influenced by political as well as numerical considerations. The strength of any nation resides in the individuals comprehended in this interval of age. A low degree of mortality at this interval contributes greatly to the physical, but more especially to the moral, strength of a nation. A low degree of mortality in infancy does not necessarily add to the strength of a nation, because it frequently involves a high mortality at the period when life is most valuable. Comparing together two "stationary" populations having each the same number living between fifteen and sixty years, the stronger and more healthy is that containing the smaller number of living under the age of fifteen years. If, however, it be assumed that the population above the age of sixty years, is as much a source of weakness as the population under the age of fifteen, then the physical force of any given amount of population, is independent of the law of mortality; at least the highest and the lowest laws of mortality which have been supposed to exist, yield the same proportion of living between the ages of fifteen and sixty years, out of a given number living at all ages. The highest law of mortality I suppose to be represented by the ancient tables for London and Stockholm; the lowest law by Dr. Heysham's observations at Carlisle, on the supposition that there were no deficiencies in the registered deaths.

It is a remarkable fact, that all the counties of England in which the mortality of females between the ages of fifteen and thirty is at a maximum, are situated on or near the same straight line; and that in the counties most distant from this line, the mortality is at a minimum, the maximum being to the minimum in the proportion of three to two nearly. This line is a central one running in a north-west direction from Brighton to Liverpool. In Northumberland and Cornwall, the two counties most distant from each other and from this line, the mortality is at the minimum. Sussex has been supposed to be one of the most healthy counties of England, and the mortality under the age of five years is as low in this as in any county. Nevertheless it obeys the law common to other counties on the central line, and suffers the maximum mortality between the ages of fifteen and thirty years. Possibly the apparent high salubrity of Cornwall, Devon, and Wales, may be the effect of their peculiar geological and geographical position. They are situated on primitive rocks containing no organic remains, and they are most exposed to the sea air.

In the preceding table the different counties have been classified, and the mortality has been stated for each county at five intervals of age. I now present a second table, which shows the mortality at six intervals of age, resulting from combining the counties comprehended in each of the eight classes. I also present the whole of the materials from which the mortality of those classes, or combinations of counties, has been deduced, in order that every reader may possess the means of verifying with ease the results exhibited. Any person possessing copies of the population returns of 1821 and 1831, may verify with equal facility the results exhibited for single counties. In the table for the separate counties, on account of the insufficient magnitude of the observations, the mortality between the ages of five and ten, was not distinguished from the mortality between ten and fifteen years of age, as it is in the following table.

Two Tables *of the Living and Dying at six intervals of Age.*

Living on the 28th May, 1821.

Living between		0-5	5-10	10-15	15-30	30-60	Above 60	Ages specified	Total
Class 1..	M.	50,453	43,490	37,563	78,323	85,473	24,932	320,234	333,046
	F.	48,983	43,141	35,668	91,860	98,550	31,190	349,392	363,441
Class 2..	M.	56,708	52,741	45,528	93,325	100,655	30,233	379,190	387,765
	F.	54,319	50,237	42,747	100,649	107,958	36,563	392,473	401,506
Class 3..	M.	94,191	83,353	74,464	154,263	170,005	51,573	627,849	730,303
	F.	90,733	81,638	69,395	175,342	188,439	58,458	664,005	785,842
Class 4..	M.	69,604	62,598	53,685	112,414	122,598	39,358	460,257	488,312
	F.	67,955	61,192	49,802	122,861	131,873	42,033	475,716	509,539
Class 5..	M.	116,395	100,271	86,769	181,348	197,896	52,670	735,349	817,363
	F.	112,420	98,379	82,649	198,245	200,302	54,863	746,858	837,745
Class 6..	M.	136,139	123,438	106,979	216,943	241,683	71,215	896,397	951,126
	F.	132,964	121,189	100,127	236,628	249,478	71,355	911,741	972,087
Class 7..	M.	189,437	163,331	142,554	286,126	312,659	77,508	1,171,615	1,402,807
	F.	183,833	160,371	134,207	326,250	322,259	80,332	1,207,252	1,454,804
Class 8..	M.	78,652	64,636	56,071	142,624	187,226	30,952	560,161	723,444
	F.	83,482	66,310	54,771	185,072	203,785	38,762	632,182	819,745
Total ..	M.	791,579	693,858	603,613	1,265,366	1,418,195	378,441	5,151,052	5,834,166
	F.	774,689	682,457	569,366	1,436,907	1,502,644	413,556	5,379,619	6,144,789

Dying at specified Ages during the 18 *years* 1813-30.

Dying between		0-5	5-10	10-15	15-30	30-60	Above 60	Ages specified	Total registered, 20 yrs. 1811-30
Class 1	M	35,450	4,606	2,416	10,638	20,420	31,710	105,240	117,401
	F.	29,944	4,576	2,468	10,705	19,534	37,342	104,569	116,797
Class 2	M.	32,465	4,674	2,948	12,267	20,362	33,365	106,081	117,377
	F.	27,088	4,333	2,694	11,107	19,947	37,921	103,090	114,813
Class 3	M.	73,704	9,902	6,206	23,981	44,408	69,608	227,809	252,544
	F.	61,984	9,240	6,249	27,817	48,536	77,688	231,514	258,425
Class 4	M.	52,365	6,296	4,081	16,097	26,680	49,599	155,118	171,373
	F.	44,134	5,803	4,476	19,578	30,899	51,764	156,654	174,618
Class 5	M.	108,043	12,723	8,071	28,659	49,623	69,790	276,909	312,502
	F.	90,531	11,174	7,638	32,305	52,254	71,612	265,514	301,186
Class 6	M.	103,853	13,120	8,552	33,322	59,245	92,927	311,019	346,881
	F.	86,927	12,076	9,432	42,449	64,216	91,840	306,940	343,682
Class 7	M.	216,756	23,982	14,867	56,560	97,757	110,884	520,806	599,125
	F.	184,396	21,486	14,055	63,131	100,126	113,022	496,216	572,256
Class 8	M.	113,403	11,960	5,183	26,467	78,019	58,381	293,413	344,468
	F.	97,899	11,044	5,143	27,583	68,193	67,742	277,604	328,030
Total	M.	736,039	87,263	52,324	207,991	396,514	516,264	1,996,395	2,261,871
	F.	622,903	79,732	52,155	234,675	403,705	548,931	1,942,101	*2,209,807

* The total registered deaths of females in England and Wales during twenty years, exceeds this number by 576, which were deaths contained in returns received after the county summaries were completed. Mr. Rickman has omitted to give the means of distributing these omitted deaths according to their respective counties.

TABLE, *showing in each of Six Gradations of Age, the Mortality per cent. of each Sex in each of Eight Classes of English Counties.*

Class.	Males (corrected).*							Females.						
	0-5	5-10	10-15	15-30	30-60	Above 60	All Ages	0-5	5-10	10-15	15-30	30-60	Above 60	All Ages
1	4.19	.63	.38	.75	1.36	7.58	1.90	3.65	.63	.41	.70	1.18	7.14	1.78
2	3.87	.60	.44	.83	1.31	7.46	1.83	3.39	.59	.43	.75	1.26	7.06	1.79
3	4.14	.63	.44	.76	1.32	7.15	1.86	3.58	.59	.47	.83	1.35	6.96	1.83
4	4.36	.58	.44	.80	1.23	7.30	1.92	3.76	.55	.52	.92	1.35	7.12	1.90
5	5.24	.72	.52	.86	1.38	7.47	2.09	4.52	.64	.52	.92	1.47	7.33	2.00
6	4.45	.62	.47	.87	1.40	7.62	1.99	3.81	.58	.55	1.05	1.50	7.51	1.96
7	6.11	.78	.56	1.03	1.64	7.64	2.34	5.33	.71	.56	1.03	1.65	7.48	2.50
8	8.19	1.05	.53	.95	2.27	10.72	2.88	6.68	.95	.53	.85	1.91	9.95	2.18
Total	5.30	.72	.49	.88	1.53	7.77	2.15	4.56	.66	.52	.93	1.52	7.53	2.05
	Table of "Mean Mortality," when period of "Infancy" terminates at seven years.							4.47	.77	.65	.86	1.66	7.62	2.09

* The apparent mortality of the male sex between 15 and 30, between 30 and 60, and at all ages, has been diminished by .06 in the total, and in classes 1, 2, and 3; it has been diminished by .03 in classes 4, 5, 6, and 7; and by .10 in the eighth class.

In the above table the mortality at different ages is founded upon the deaths at specified ages occurring during the eighteen years 1813-30, whilst the absolute annual mortality is founded on the deaths occurring during the twenty years 1811-30. The difference between the mortality for the eighteen and for the twenty years is insignificant; in the former case, for the whole of England and Wales, it was for the female sex, 2.064 per cent. per annum; in the latter case it was 2.061. It would have served no useful purpose to have undertaken the labour of separating the deaths of the two years 1811 and 12, and the difficulty to the reader in verifying my results would have been unnecessarily increased. For similar reasons I have also omitted to complicate the question, by introducing a trifling correction consequent on the assumed mean population being too great, the enumeration having been made in the middle instead of at the beginning of the year 1821. It may be useful to give an example of the mode of obtaining the number representing the absolute annual quantity. In the first class, the registered deaths of females are stated to amount to 116,797, which increased one-ninth part for unregistered deaths, and divided by 20, yields 64,887, as the average annual deaths. This number divided by 363,441, representing the mean number living during the period of observation, gives the quotient 1.78, which is the number stated as representing the absolute annual mortality. The relative mortality at each age results from dividing the deaths at specified ages, by the living at the same specified ages. These numbers are then made to represent the absolute mortality at each interval of age, by using, as a common multiplier, the number which will reduce the mortality of the aggregate to the number previously obtained, representing the absolute annual mortality at all ages.

In the eight classes of counties, the ascending gradations in the mortality between the ages of fifteen and thirty years, are not so well marked among males as among females. Nevertheless the difference between the maximum and minimum is nearly the same for each sex. In the first, or most healthy class, the annual mortality of females between the ages of fifteen and thirty is seven out of one thousand living; in the seventh, or most unhealthy class, it is 10.3 out of a thousand. In the same classes, at the same age, for males, the results are 7.5 and 10.3 out of one thousand living. On inspection of the above table it will be seen, that the mortality of females between the ages of fifteen and thirty most exceeds the mortality of males at the same age, when the mortality of females between five and ten differs least from the mortality of females between ten and fifteen years. From the same table it would appear that the mortality above the age of sixty years is nearly constant in all classes, especially among males. This result is not much to be relied upon, because the variations to be looked for are very small, and as such might be concealed by the population above the age of sixty years, not being exactly distributed in the same manner in the different counties. There exists, however, a distinct ground for the belief that the mortality above the age of sixty years is nearly con-

stant. In nearly all the counties of England the number living in 1821 between the ages of sixty and seventy was to the number living between the ages of seventy and eighty years, in the proportion of two to one nearly, which coincides with the result of the table of "Mean Mortality," on the assumption of the population being stationary. I have already stated my reasons for the belief that this was the case, and that the living between seventy and eighty were the survivors of the same number of births as the living between sixty and seventy years of age.

The population returns furnish the materials for determining the law of mortality in six towns only, which are of the largest size, and principally seaports. On account of the omission in the enumeration of the maritime and military population, we cannot determine the degree in which the mortality of males exceeds that of females between the ages of fifteen and sixty years. It is, however, indisputable that in all these towns the mortality of males considerably exceeds that of females at every age. In all England and Wales the mortality of males above the age of sixty years, exceeds that of females by three per cent. only; in the six large towns the excess is 14 per cent. The scale of relation connecting together the mortality at different ages in large towns differs from the scale for counties chiefly in exhibiting a high ratio of mortality in infancy and in old age; the minimum mortality, or that existing between the ages of ten and fifteen years, being nearly the same in towns as in the country. The absolute mortality stated for these towns is founded on the assumption that the registered deaths are to be increased 20 per cent. in order to obtain the true number of deaths; in the whole of England and Wales the estimated increase has been 13.92 per cent. In large towns the mortality between five and ten, is to the mortality between ten and fifteen as two to one nearly, which indicates that the mean age of attaining the minimum mortality is at nine years; for all England and Wales the minimum is attained at the age of 7¼ years. This fact, which is established on the firmest ground, as it depends on the correctness of the relative and not of the absolute numbers returned, seems to contradict the commonly entertained opinion, that the epoch of puberty occurs at an earlier age in towns than in the country. It is, however, difficult to believe that such an opinion can have any sound foundation; for it can hardly be disputed that the general population of large towns suffer greater privations of food and air, than do the inhabitants of the country. Perhaps the erroneous opinion may have been founded on observations of the wealthier and smaller proportion of the inhabitants of towns who are accustomed to highly stimulating diet, and to a high temperature in their habitations.

TABLE, *showing in each of Six Gradations of Age, the Mortality per cent. of each Sex in each of Six Large Towns.*

	Males (without correction).							Females.						
	0-5	5-10	10-15	15-30	30-60	Above 60	All Ages	0-5	5-10	10-15	15-30	30-60	Above 60	All Ages
York	7.42	1.02	.72	1.03	1.76	9.22	2.65	6.39	.81	.52	1.00	1.60	8.04	2.32
Norwich ..	9.81	.95	.47	.81	1.60	8.96	2.98	7.68	.73	.50	.78	1.50	7.80	2.51
Plymouth	8.90	1.05	.60	2.02	2.46	9.00	3.60	7.56	1.05	.53	.91	1.62	7.79	2.52
Hull.....	8.40	1.28	.59	1.37	2.03	9.57	3.13	6.79	.98	.57	.99	1.84	8.48	2.55
Portsmouth	7.66	1.02	.60	1.89	2.49	10.48	3.35	6.25	.84	.49	1.15	1.99	8.69	2.49
Liverpool	10.31	1.13	.67	1.73	2.71	10.64	3.65	9.89	1.10	.54	1.10	2.11	9.58	2.97
TotalTowns	9.14	1.08	.62	1.52	2.32	9.80	3.36	8.00	.96	.53	1.01	1.85	8.56	2.66

The mode of distribution according to the age of the population living in 1821 is a question of considerable importance in the present inquiry. I have therefore constructed a table representing the number of females living in each of five gradations of age, in each of the eight classes of counties, and in each of the six towns, out of one thousand living at all ages. This table indicates that the mode of distribution of the living is nearly the same in all classes except the eighth, which represents London. The great disproportion in this last class between the numbers living between five and fifteen, and between fifteen and thirty years of age, shows that one-third of the females living in London between fifteen and thirty are immigrants from the surrounding country. It would be difficult to give a correct and useful view of the manner in which the male population is distributed, because we are ignorant of the number and ages of the military and maritime population attached to England, whether at

home or abroad. Mr. Rickman, in the population returns of 1821, has given a very incorrect view of the distribution of the male population. He omits entirely all the maritime and military population, and consequently exhibits an excessive proportion of males under fifteen and above sixty years of age.

In comparing together two districts wherein the population is stationary, the higher proportion of survivors above the age of sixty years, will indicate the existence of a lower degree of mortality. When the population of the two districts suffers the same rate of increase or decrease, the higher proportion of survivors will equally well indicate the lower degree of mortality. Upon a principle of this nature I have instituted a comparison in the different classes of counties, and in towns, between the number living above sixty, and the number living between thirty and sixty years of age. I have added a column in the following table to represent the proportion of survivors above sixty for every one hundred living between thirty and sixty. There is a general agreement between the mortality indicated by this and by other principles. For example, the annual mortality of females in the first class above the age of sixty is 7.14, and in class eight it is 9.95 per cent. In the first class the living above sixty amount to 31.6 for every one hundred living between thirty and sixty; whilst in class eight the survivors amount to only nineteen out of a hundred. The few existing discrepancies are such as might be expected to arise from occasional differences in the rate of increase of the populations compared. I have also given the results of my table of "Mean Mortality," founded upon the assumption that the population had been increasing 16 per cent. at each decennial interval under the age of fifty years, and had been stationary above that age. It has also been assumed that the age at which the minimum mortality has been attained is seven years, which corresponds with the fact for females in all England. The resulting distribution according to this theoretical table agrees precisely with the ascertained distribution according to age of the female population of England in 1821.

TABLE, *showing for each of Eight Classes of Counties, and for each of six large Towns, the number of Females living in each of five intervals of Age out of 1000 living at all Ages; also showing the proportion living above 60 years of Age, for every hundred living between 30 and 60 years.*

Counties.	Females in England and Wales.						Towns.	Females in Towns, &c.					
	0-5	5-15	15-30	30-60	Above 60	Prop. above 60		0-5	5-15	15-30	30-60	Above 60	Prop. above 60
Class 1	140	226	263	282	89	31.6	York	118	224	277	298	83	28.0
2	138	237	257	275	93	33.9	Norwich ...	124	199	277	303	97	31.9
3	137	227	264	284	88	31.0	Plymouth ..	138	210	261	321	70	21.7
4	143	233	259	277	88	31.9	Hull	139	214	268	308	71	23.2
5	151	242	265	268	74	27.4	Portsmouth	148	242	266	295	59	19.9
6	146	243	259	274	78	28.6	Liverpool ..	135	232	278	303	52	17.2
7	152	244	270	267	67	24.9	Total Towns	135	221	272	305	67	21.8
8	132	192	293	322	61	19.0	Scotland ..	129	223	282	286	80	28.0
England & Wales	144	233	267	279	77	27.5	Ireland ..	153	257	298	252	40	15.7
Mean Mortality ..	144	230	262	288	76	26.5	Belgium ..	130	204	256	315	95	30.3

The greatly diminished mortality of infants in England is probably the consequence of the rapid increase of the population during the last sixty years. There are only two principal causes which operate in producing an increase of population; and either of these would appear adequate to account for a diminished mortality in infancy, and an increased mortality between fifteen and sixty years of age. The first cause is an increased supply of food to each living individual; of which the immediate and temporary effect is, a reduction in the mortality at every age. The second cause which determines an increase of population is, the exercise, at an earlier period, of the reproductive power, which is the only way that an increase of population can be obtained when the proportion of food to each individual remains constant. I believe that the fact will not be disputed, that the development of animate and inanimate life is

accelerated by a plentiful supply of food; and I believe that it will no more be disputed, that as the rapidity of development increases, the soundness and degree of consolidation of the mature individual diminishes. Whether a diminution of the mean age of contracting marriages causes a more rapid development of the new population, is more a matter of conjecture, as the facts bearing on the subject are yet very deficient. It appears, however, highly probable that the children of parents who have exercised the power of reproduction at an early age, will be sooner able to propagate than the children of those who have exercised this power at a more advanced age. The germs of animals may reasonably be supposed to obey laws similar to those regulating other constituent parts of adult individuals. I believe it to be admitted by physiologists, that the proportion of new matter secreted, and of old matter absorbed, diminishes as the age of the adult individual increases. That is to say, the elements of the members of young individuals are in a state of greater activity, or impressed with more motion, than those of older individuals. It may hence be inferred that the germs detached at an early age, containing elements in a higher state of activity, will have a tendency to more rapid development than the germs detached from the same individual at a more advanced age.

The English population returns, however, supply no evidence as to the epoch of puberty; they only show that the minimum mortality is now attained one or two years earlier than it is supposed to have been attained in any other European country. This is, however, a sufficient ground for presuming that the new population undergoes a more rapid development than that undergone by the population of other countries; which presumption is corroborated by a corresponding increase in the mortality between fifteen and sixty years of age. In every county of England, the mortality between the ages of fifteen and thirty years bears a higher proportion to the mortality between thirty and sixty years of age than it ought to do according to the Swedish observations, or according to the new theory of mortality. This apparent contradiction becomes a confirmation of the new theory, if it be admitted that the English population is now in a state of transition, and that the limiting age of "infancy" fifty years ago was at nine years instead of at seven and a half years, which it is at present. It being also admitted that the contraction of the period of infancy indicates a more rapid development, and a consequent diminution of consolidation in the new population. The deviation from the theory in England now is just what might be expected to occur, on the supposition of the rising adult population possessing a lower degree of vitality than their immediate predecessors.

The population of Belgium is apparently also in a state of transition from a low to a high mortality between the ages of fifteen and sixty years. The limiting age of infancy is now at eight and a quarter years, having previously been probably at nine years, as in other European countries. The Belgic observations exhibit the same "plague spot" as the English observations, in the high relative mortality between the ages of twenty and thirty years. The only difference between the population of the two countries appears to be, that the state of transition has endured twenty years longer in England than in Belgium. It is not improbable that the law of mortality in Belgium, at the present day, coincides with the law of mortality which existed in England twenty years ago. Under the age of ten years the mortality in England is considerably less than in Belgium; at all ages above fifteen years it is as much greater.

It might be denied that the proportion of food to each individual of the English population has been increased during the last sixty years, because the wages of labour, measured in wheat, has not been increased during that period. This objection is of no weight, because the mode of subsistence of the labouring population has experienced a great change, potatoes having constituted one of the principal articles of diet. Assuming that four pounds of potatoes are equivalent in nourishing power to one pound of wheat, and that six pounds of potatoes are generally sold for the same price as one pound of wheat, each labourer will have his command of food increased fifty per cent. In London, and probably in all very large towns, one pound of wheat is seldom exchangeable for more than three pounds of potatoes; consequently the labourer can obtain no increase of nourishment by expending his wages on potatoes instead of on wheat, and cannot satisfy his hunger with coarse food when the supply of plain food fails him. In small towns, but more especially in villages, a great increase of food is generally obtained by the substitution of potatoes for wheat. This difference in the relative value of wheat and potatoes, by causing a different degree of privation, may be the reason why the minimum mortality is attained one year later in large towns than in the country.

46, Regent-square, Dec. 1835.

THE LANCET.

London, Saturday, December 12, 1835.

It has been ordained by the Crown that Parliament shall assemble for the dispatch of business on Thursday the 4th day of February. In less, therefore, than two months from the present time, the Poor-Law Medical-Contract system, as it has been sanctioned and enforced by the Government Commissioners, may become the subject of discussion in the Houses of the Legislature. Throughout the profession it is agreed, without, apparently, a dissentient voice, that nothing can be more odious, impolitic, and stony-hearted, than the existing arrangements. Every where it is seen, felt, and acknowledged, that the contracts with which resident medical practitioners are forced to comply, as alternatives which are preferable to the introduction amongst them of a host of vicarious, mercenary, and unfeeling adventurers, are calculated not only to inflict upon the suffering poor a vast aggravation of their miseries, but to excite in the minds of the immense body of hale English labourers, such feelings as no wise government would deem it rational to cherish.

The system, consequently, calls for instantaneous abolition. But the Commissioners and Parliament may very justly ask, "What is the plan which is to be sanctioned as a substitute?" and the Commissioners may allege that it is not altogether fair to inflict upon them so much censure, and raise up against them such a host of enemies, unless we prove that a better system can be adopted than the one which they have sanctioned. To this point, therefore, we are anxious to invite the immediate attention of medical practitioners. Where the Unions exist, the present plan is in operation. Its pernicious effects are there observable. These should be carefully collated, and the means of subverting them by the adoption of some other plan, should be sagaciously considered. If it be thought that the discretionary power which is now exercised by the Poor-Law Commissioners should be abrogated, and that the supreme executive authority, in arranging all matters connected with medical contracts, should be invested in the Board of Guardians—if, also, it be deemed an object of humane and necessary precaution, that a minimum rate of charge for the exercise of medical skill, and the supply of medicines to the sick poor, should be adopted, below which the mercenary and brow-beating jobbers should not be enabled to depress the interests of their victims, it will be necessary that a Bill should be introduced into Parliament for altering so much of the Poor-Law-Amendment Act, as relates to the medical treatment of the necessitous poor.

What, then, ought to be the scale of charges?—What ought to be the minimum of charge?—Under what conditions should the Board of Guardians exercise their executive medical functions?—These questions are at this moment of great importance, and on the share of attention which may be bestowed on them may depend, in a great measure, the lives of some thousands of the people of this country. Within a few weeks it will be necessary that a plan which is sanctioned by medical practitioners themselves, for placing the medical contract system in the Unions on a just and secure basis, should be placed before the legislature. We are anxious, therefore, that not a moment should be lost in considering the question, with a view to accomplishing a practical permanent improvement; and whatever may be the views of our professional brethren on this subject, we hope that they will be induced to communicate them to us, whether for publication in the pages of this journal, or in the form of suggestions, to be employed with effect within the walls of Parliament. Quite evident is it that the cause of the suffering poor, and of the profession, will make but a sorry exhibition in the House of Commons, unless some almost unobjectionable plan can be substituted for

the system which is now carried into operation by the Poor-Law Commissioners.

What, therefore, is the scheme which medical practitioners would recommend?

In determining to found a national University in this metropolis, the Ministers of the Crown have taken a bold step, but it is, nevertheless, one which is in perfect keeping with the liberal measures which they produced and supported in the last session of Parliament. We cannot, however, avoid expressing our regret that it is intended to grant degrees in medicine in the new institution, and this feeling, which so strongly influences our minds, is shared, we find, by the great majority of our professional brethren. *We have already in England alone, six bodies which are empowered to grant diplomas, licenses, or degrees, in medicine and surgery.* It is unwise, therefore, to add to the number of those mischief-making or mystifying institutions in medicine, until, at any rate, the profession have had an opportunity of inspecting the report which is yet to be made by the Medical Committee of the House of Commons, of which Mr. WARBURTON is the able chairman.

We have not space to devote to this subject in the present number of our Journal, but we may observe, *en passant*, that at a meeting of the Council of the *London College of Medicine*, it has been resolved to present a petition to the Crown, praying that no alteration may be made with reference to medical statutes or titles, until the Committee of the House of Commons has finished its labours; and, further, that in founding a new University, no monopoly may be created in favour of any particular institution or institutions.

We cannot avoid remarking that the foundation of a new University in the metropolis of the empire is a proceeding pregnant with so many important considerations, that copies of the document which is to be framed for its government, ought to be generally and widely diffused, before the charter receives the sign-manual of the King. Had a draft of the charter of the College of Surgeons, in the year 1800, been laid before the public at that time, is it possible that so detestable an instrument could ever have received the sanction of the Ministers of the Crown? There can be no reason why the drafts of charters ought not to receive as much publicity as bills which are introduced into the House of Commons. It is to be hoped, therefore, on every account, that the draft of the proposed charter will be laid before the public, so soon as the terms of its arrangement are agreed upon by his Majesty's Ministers and the Members of the Privy Council.

On the 19th ultimo the following notice was issued from the Dublin College of Surgeons:—

"Dublin, 19th Nov. 1835.

"The Royal College of Surgeons in Ireland will hold a special meeting on Monday next, at two o'clock, to receive Mr. Kirby's resignation of the Professorship of the Theory and Practice of Physic. By order,

"C. O'Keefe, Dr."

Thus terminates, in disgrace and disappointment, a job that was conceived in the worst spirit of corruption, and carried into effect by means which cannot be safely described. May all such execrable invasions of the rights of the medical profession end in a similar manner, and may such be the just requital of all those who barter the gem of peace and integrity for the fleeting baubles of selfish and disreputable ambition. Mr. KIRBY cannot, we presume, be much surprised at finding his fate the subject of these aspirations, nor expect that the event of his improper connection with the College of Surgeons would excite in his behalf the slightest commiseration amongst his professional brethren. He walked into the "house of sin" with his eyes open. His commerce with its leprous occupants was an act of free-will and deliberate consideration. He had abundant knowledge of

the moral maladies of the place, and ought to have foreseen the consequences to his reputation of holding communion with them. He had not even the temptations to which prudence would consider it worth while to sacrifice the better feelings of human nature, and the certain results of the exercise of such abilities and information as he possessed. A professorship of the practice of physic in the College of Surgeons was at no time of much pecuniary value, and at the moment he accepted it the prospects of its becoming worth still less, were more obvious. The science of medicine had been so revolutionized in character, and so enlarged in extent, that no man in Dublin, of Mr. KIRBY's standing, nor any one who was educated in the principles of the by-gone school of physic, could expect to discharge the duties of such a professorship with success; while, to ensure the failure of such a speculation, there were arising in Dublin many young men of talent, who were instructed in, and were about to establish, the doctrines of the new school. It was not, therefore, worth Mr. KIRBY's while to accept, under any circumstances, a paltry promotion, the profits of which he might have seen would be daily diminishing by a competition which he was but indifferently prepared to oppose. It is, however, but justice to him to believe that he was the least criminal, though the most injured party, in this disgraceful transaction. He certainly was not the crafty unprincipled draftsman of a design which elaborately calculated the advantages, while it insured the ruin, of a rival, under the pretence of conferring an honour and rendering him a service. He was but the weak, improvident, consenting, instrument in a plot against the privileges and property of a whole body of private individuals, which none but the most selfish could conceive, or the most insensible to character could have executed. Both parties have, however, had their reward. Mr. KIRBY is compelled to retire from a national institution which could only procure for him ten or a dozen pupils this season; while the establishment which his appointment was intended to destroy, is, we understand, more prosperous this year than at any period of its former history. The humiliation of lecturing before a class of this compass, to a man who, in other days, was accustomed "his little senate to command," was the real cause of Mr. KIRBY's retirement, and not a "fit of the gout," as he would have his contemporaries and the public to believe. It was, in fact, the class of the College School which took the gout; and if we are not very wrong in our conjecture, the disease will, in a short time, become general in other departments of the same establishment. Mr. KIRBY has thus been made, by an imprudent and unjustifiable compact with a corrupt body, to quit, at the most active time of life, the busy scene, and to seek in the retirement of private life, the reparation of his once brilliant reputation. This case may be a warning to those who would follow in his footsteps. From his career, the dupe or the knave who fancies he tricks, or is tricked by, a faction, may learn this lesson, that vices operate like age; they bring on disease before its time, and in the prime of manhood disclose a character, broken and exhausted.

But the reader will naturally inquire "What was the conduct of the College, "and of the individuals in particular, by "whom Mr. KIRBY's sacrifice was accom-"plished?" Did they evince any compunction for the injustice which they committed on Mr. KIRBY, and through him on the profession? Did they even observe the dictates of decency in covering the shame and discomfiture of their victim, by passing a worthless vote of thanks, or, by any other consoling expression, approve of the conduct of a retiring officer who had suffered in their service? No; Mr. KIRBY's labours as a teacher, his favours as a patron, and his advocacy as a politician in the College School, were not considered, on the occasion of his resignation, as worth even a resolution declaratory of the approbation of that vir-

tuous and grateful Institution. The announcement of his retirement was, we understand, received by his colleagues with all that heartless indifference with which the practised seducer would hear of the miseries of his victim. The common tribute of respect which might be conferred on a porter or a clerk of the establishment—a vote of thanks — was withheld from Mr. KIRBY! Far different were the motives by which they appear to have been actuated; other objects, of more moment than thanks to Mr. KIRBY, were occupying their thoughts. "Let the dead bury the dead," seems to have been the rule acted on by them with the most literal fidelity of interpretation and malignity. The provision of a successor out of his extinction—the conjuring up a new phœnix out of the ashes of the departed, to shed a temporary lustre on the school in Stephen's-green, was a much more important matter than a vote of thanks and idle regrets; and to this point they immediately applied themselves on the occasion. The account which we last week promised to give, from a correspondent, of the proceedings, we must again postpone for a week.

In recommending, last week, the paper of Mr. EDMONDS to the attention of the profession, as a document containing information respecting many important facts relative to which great *secrecy* was observed by those few persons who are qualified to form correct conclusions on the subject, the author thinks that some misapprehension may occur, which he requests us to prevent by stating, "that the universal *silence* which "has been observed respecting materials "which have been twelve months before "the public, admits of a more satisfactory "explanation. Nearly every writer whose "opinions upon the subject are of any va"lue, has fallen into the error of conclud"ing, that because the annual mortality of "the English nation, at all ages, has been "diminished from one in thirty-eight to "one in forty-eight, *therefore* the mortality 'at every age of life has been diminished. "The present new materials show, that the "mortality of persons above the ages of "fifteen years has suffered no diminution; "the mortality of infants alone having been "diminished. It may not, therefore, be "reasonable to expect, that writers on mor"tality will assist to disseminate newly-"presented facts, which are contradictory "of their previously-expressed opinions." The concluding portion of Mr. EDMONDS's article will be found at page 407 of this week's LANCET.

METROPOLITAN UNIVERSITY DEGREES.

To the Editor of THE LANCET.

SIR,—Being at present a student at *King's College*, and intending at some future period to present myself before the examiners of the university about to be founded, as a candidate for a degree in medicine, I consider myself to be partially interested in the question which has been descanted on in the article at page 389 of THE LANCET, to which my letter is intended as a reply, viz., Should residence for a given period in an university, and conformity to a prescribed course of study, be required to render a person eligible to graduate in the University of London?

But before proceeding farther I must premise, that although I am aware that you yourself advocate the principles which your correspondent has laid down, yet I am not deterred from writing, through any fear that my communication will be rejected solely because it is opposed to your opinions. No, Sir, I have long been a reader of THE LANCET, and never do I remember having seen an instance of illiberality on your part. I therefore forward this to you, relying on your known candour for its insertion, as much as if I knew that you cordially agreed with the opinions expressed in it. Neither indeed (considering it as a matter of policy) would it be wise to confine the columns of a scientific journal to the use of one party; for its reading being confined to men of a liberal education, who are accustomed to judge for themselves on every subject, and unbiassed in their sentiments, they never form a decided opinion on any point without weighing well all the arguments, *pro* and *contra*. With such readers, therefore, no object can be attained by refusing free discussion on any matter.

The object of your correspondent apparently is, to admit persons to an examination for degrees, without subjecting them to a previous course of study, and merely on

the strength of a certificate of good moral character. With the proposition that a certificate should be required, I most cordially agree, but some important alteration ought to be made in the manner of obtaining it, for the deplorable facility with which certificates are now given is well known. Indeed, I have no doubt that they are frequently forged. What I now proceed to prove is, that although the scheme of allowing young men who are designed for a profession to obtain their education where and how they choose, might be better for a very few individuals, it would be almost ruin to the great majority. At present, when students, from a fear of being refused their certificates, are compelled to attend lectures occasionally, how many are there, let me ask, who never show themselves in a lecture-room more than three or four times a week? Perhaps your correspondent will say that they are more profitably employed in pursuing their studies at their own homes; but this I am afraid will scarcely ever be found to be the case. No, I am ashamed to say that even under the present laws, a great number throw away that time on vice of every description, which ought to be spent in study. But still, owing to the lecture-system, they are compelled occasionally to recur to their studies. Now, if these persons were allowed to study in what manner they liked, the consequences clearly would be dreadful. They would most likely be sent by their relatives to London or some large town, where, instead of studying, they would squander away their money and time in the pursuit of dissipation, always putting off the period of study until, having entirely ruined themselves in fortune and health, they have disgusted their friends, and, in many cases, are compelled (*heu quanta degradatio!*) to apply themselves to trade, and perhaps linger out the remainder of their miserable and degraded existence in the employ of some chemist and druggist. Such is a feeble picture of the evils which I am satisfied would in numerous instances result from the misjudged act of leaving young men to chalk out for themselves their mode of study. Students, especially of medicine, are always, partly from inexperience, and partly from bad companions, prone to vice, and this measure would, I am afraid, give them more opportunity for it. Such are my objections, treating this in a moral point of view.

Again, I am confident that to a certain extent the oral has a great advantage over the written method of communicating instruction to youth. There are many points connected with the different studies which it would be impossible to treat of fully in books, although there is no doubt but that if a person were to hear a number of lectures, without reading at the same time on the subject of them, they would benefit him very little; and there are also many matters of general information connected with the subject of the lecture, which he hears at the lecture, and of his knowledge of which it would be next to impossible for the examiners to form an idea in an examination of any reasonable duration. Also the weekly examination of the different classes by the several professors, is an advantage of no small importance.

Also let me suggest, that it is unfair to cast imputations on a body of men whose names are not even known, and who are not yet called into I may say political existence, which your correspondent does in hinting that the old method of study has been adopted by them as likely to be more conducive to their own ease.

Again, he says that none but the comparatively rich will be able to graduate in this University. Certainly not, and therefore it is so much the more to be approved of. All graduates are, at present, as a matter of course, supposed to be gentlemen, and to be either of good families, or to have received a polished education, fitting them for the society in which, as graduates, they are entitled to move. Now, if young men were to be allowed to graduate directly on coming to London, relying solely on their own exertions for getting through the examination, and without being put to any expense, being sons of farmers, tradesmen, &c., their graduation would detract much from the respectability of graduates as a body, and though, in a few instances, no one could object to persons raising themselves from the lower classes by their talent, still, as a general thing, it cannot be too much deprecated.

Being fearful of exhausting too much space, I must now draw this subject to a close. I have not, I hope, said any thing which can be construed as personally offensive to any one. As to the strength of my arguments, as compared with those of my opponent, that must be decided by the public.

I see that in your last number a correspondent would suggest, that the new body be allowed to confer degrees in surgery. Permit me to suggest that if this be carried into effect, a regulation should be made compelling candidates for the degree "chirurgiæ baccalaureus" to afford proofs of understanding drawing, as I am of opinion that this knowledge assists the anatomical student greatly. Also, that if a graduate in surgery, or, in fact, if any graduate, wishes to obtain the license of the Apothecaries' Hall, he should be exempt from the regulation which requires an apprenticeship of five years, and should only be obliged to spend one year in dispensing.

Allow me also to draw the attention of your readers to the fund at present raising for the support of the mother and sister of

the late Gilbert Burnett, Esq., lecturer on Botany in this institution. They depended entirely on his exertions for their support, and are now in a state of poverty. He was the last male descendant of Bishop Burnett.

I would also propose to the proprietors of *King's College*, and the *University of London*, *i. e.*, the institution at present called so, that they should admit two young men annually in each department, giving them free admission to every class until they have completed their studies in the particular profession they make choice of. The objects of election should be young men of good connections, but destitute of the means of placing themselves in a profession, or giving themselves an education which might fit them to conduct themselves with credit in the society in which by birth they are entitled to move. This should, if possible, be kept secret from their companions.

Why should not the new University be empowered to confer a degree in architecture? Surely it is a science. The degree might, to avoid confusion, be *Coryphæus*,* to rank as high as *Magister*, and be taken two years after that of *Bachelor of Arts*. Anxiously expecting the publication of your next number, I remain, Sir, your obedient servant,

A King's College Student of Medicine and Surgery.

THE WITHHELD MEDICAL-REFORM-ESSAY PRIZES.

To the Editor of The Lancet.

Sir,—I have read with equal surprise and indignation, in The Lancet of Nov. 21st, the letter of Dr. Epps, on the subject of the medical reform essays. A more flagrant breach of faith to the writers of the several essays which were so many months ago transmitted to Dr. Epps, it is impossible to conceive, than the statement contained in that letter, that "the Committee of examination have decided that there are not any three of the essays deserving of the prizes." On referring to the original conditions, published with the signature of Dr. Epps, as secretary to the Medical Reform Associations, I cannot discover any reference whatever to the *abstract merits* of the essays. They simply state, that "For the *best* essay will be awarded the sum of 50*l.* sterling; for the second, the sum of 30*l.*; for the third, the sum of 20*l.*" It was the *comparative merits* of the essays alone, then, that the Committee of Examination had to decide upon. With their *intrinsic* merits, so far as the prizes were concerned, they had nothing to do; and however little meritorious they might be, provided the proposed conditions were attended to, the *three* best were as much entitled to the prizes, as if they had actually come up to the *beau ideal* of perfection which the Committee now assume as necessary to render them "deserving of the prizes."

Of Dr. Epps I know nothing, but as an honourable member of a liberal profession I am sure it must be extremely painful to him to be made the medium of communicating to the public so dishonourable an instance of broken faith. That Mr. Hume can have sanctioned such a proceeding, I am unwilling to believe, but as the treasurer and only declared member of the Committee of Examination, he will do well to use his influence in obtaining justice for the writers of the essays.

It would be easy to dilate on many circumstances connected with the proposed prizes of the Medical Reform Association; more especially the great delay that has taken place,—without any explanation,—the promise which Dr. Epps formerly made of an early decision, and the extraordinary effrontery with which further competition is invited for prizes which unquestionably belong to writers who have already contended for them. But, in the hope that a feeling of shame will induce the Committee to perform, without further delay, an act of justice which they must perceive to be *inevitable* in the end, I shall for the present forbear.

I remain, Sir,
Your obedient servant,
Philo-Justitia.

Nov. 29, 1835.

APOTHECARIES' HALL.

To the Editor of The Lancet.

Sir,—An instance having very recently occurred under my own observation of the treatment of students at Apothecaries' Hall, I am induced to forward the facts to you, in order that students may see the necessity of strictly adhering to the regulations of the Hall, however difficult of performance and mysterious they may appear.

A pupil who had entered to all the required lectures (*perpetual*), presented himself at the Hall, for examination in Latin, but being wholly ignorant of the form of registering, he had omitted to register during the time usually allowed. To obviate this he was advised to address a petition to the Board of Examiners. He did so, and was told to call upon the Secretary (Mr. Watson) for an answer. This he has repeatedly done, without obtaining any information on the

* "Coryphæus" means the *Master*, *Chief*, or *Principal*, in any thing. The degree therefore of "A.C." could not lead to any confusion, while that of "A.M." might.

subject; and no answer can he get, although I know for certain that his petition was laid before the examiners, and leave was decided on by them to be given to the gentleman to register. On one occasion he asked Mr. Watson what he had better do. Mr. W. said, "I know nothing about the case. I am no more than a post-office to the Hall. You have your answer and there's the door." He then applied at the Hall, but was again referred to Mr. Watson, upon whom he called, in my presence, for the tenth time; but on giving his name and stating his business, Mr. W. said that no such petition as his had ever been sent, and when I told him that I saw the petition in his (Mr. W.'s) own hands, a few mornings previous, he declared that my statement was false; and when I told him that we had been under the necessity of calling eight or ten times within three weeks, he said it was all "a lie," and that he had never seen either of our faces before. And this is all that my friend can learn of his petition. Is this the language which ought to be used by the Secretary of the Apothecaries' Company, to students praying for information? Of his ungentlemanlike conduct I will say nothing, as it is only what students must expect in that neighbourhood. But he should remember that although he is Secretary to a Company who derive a great income by the contributions of students, he may live to see the abolition of that Company, as the result of the combination of those students with the thousands of practitioners who are already rendering their powerful influence to place medical education under the superintendence of a very different body of men. I am, Sir, your obedient servant,

A Medical Pupil.

December 5th, 1835.

*** The name and address of the writer of this letter have been placed in our hands.

TERM OF APOTHECARY-APPRENTICESHIPS.

To the Editor.—Sir,—I cannot forbear noticing the very extraordinary conduct of the Examiners of the Apothecaries' Company, in making so many alterations in the regulations for apprentices. When I was bound apprentice, about eighteen years ago, I was distinctly told that it was necessary I should serve the whole seven years, prior to my attendance at the London hospitals. Two years after the expiration of that time, being established in practice, I took an apprentice, and was then told that the Court thought the seven years too long, and that they would be content with five years' *actual servitude*; it now appears that they consider three years sufficient, which is surely unjust to those who have been compelled to serve the whole time; and though I certainly think the period of seven years, which I served, much too long, yet, as it was the customary time allotted to all, I had no reason to complain, and reflected that I should in my turn derive benefit from the assistance which my apprentices would afford me during the latter part of their stay. According to the present regulations, medical men are expected to dispense with the services of their apprentices just at the time they are beginning to be most useful to them, and the pupils are compelled to attend a tedious routine of studies, subject to such complicated regulations as are exceedingly annoying and harassing to them, and reflect the utmost disgrace and discredit upon the Court of Examiners. Trusting you will allow insertion to these remarks, I am, Sir, your obedient servant,

A Licentiate of the Apothecaries' Company.

TREATMENT OF FRACTURES.

To the Editor.—Sir,—The scientific observations of Mr. Radley on the treatment of fractures in late numbers of your invaluable publication, bring to my recollection the practice I witnessed when assistant to Mr. Clapham of Thorney, who has now been in the habit, for upwards of thirty years, of invariably treating fractures on the same principles as Mr. Radley. His sons, I understand, pursue the same plan. It is to be regretted that men of such long standing in the profession, and who have enjoyed such opportunities of gaining professional knowledge, do not communicate to the public some of the many valuable cases which must necessarily have thus come under their observation.—I remain your ardent admirer, M. D. W.

Borough, Dec. 4, 1835.

Medical Magnetism.—*To the Editor.*—Sir,—In the report of a meeting of the Westminster Medical Society, published in your valuable miscellany of the 5th instant, it appears that Dr. Epps thought proper to state "that a gentleman had offered to Messrs. Watkins and Hill of Charing-cross, 100 guineas, if they would produce magnets having the like power (referring to those prepared by Dr. Schmidt). They tried, but at last were compelled to acknowledge their incompetency." Now, Sir, we trust you will afford us space to give the most decided contradiction to that statement. Why our names should be thus thrust forwards to advance the views of Dr. Schmidt, we know not; but this we do know, that neither with the Doctor, nor with his magnets, are we in any degree acquainted, nor have we ever made any attempts to compete with him. Hence it is clear that Dr. Epps must have been labouring under some strange delusion

when he made the assertion, to which, in justice to ourselves, we have been compelled to advert. We remain, Sir, your obedient servants, WATKINS and HILL.

5, Charing-cross, 8th Dec., 1835.

NOTE FROM DR. SCHMIDT. — *To the Editor.* — *Sir*, I am anxious to reply to your question in the last Number of THE LANCET "if Dr. Schmidt withholds any information relative to his mode of constructing magnets," in the negative. It will be obvious to you, that in making known the chemical theory upon which I construct my magnets I furnish the clue to similar results which are equally attainable by others. Having found what I consider the right path, I point it out to the scientific world. Need I do more? I avail myself of this opportunity to thank you for the full and favourable report which you have given of the discussions at the *Westminster Medical Society*, on mineral, or, as you properly term it, medical magnetism; and to ask you if any reports of cases of cure by the magnet will be acceptable to you? If so, I should feel obliged by the publication of two or three complete ones, which I can authenticate. I am, Sir, your very obedient servant, CHARLES SCHMIDT.

137, Regent street; Dec. 9th, 1835.

*** If Dr. Schmidt transmits to us, for publication, any cases which have occurred to him since his residence in London, we will certainly endeavour to find room for them in our columns.

CORRESPONDENTS.

THE note of *Argus* is the product of a malicious mind. We believe that the private lecturer whom the writer attempts to vilify, discharges his duty more effectively and scientifically than any other private teacher in the metropolis. One thing is curious in connection with the medical schools of the metropolis. Candidates, it is well known, are not admitted to examination at the medical colleges and halls, unless they produce certificates of attendance in some of the "recognised" schools. It is equally well known, that in many of the schools no information whatever is obtained by the pupil, but that he gets the whole of his knowledge from some teacher who discharges his duties to his class at his private residence. Now when a candidate who is known to have been the pupil—whether an inattentive one or not,—of a private teacher, happens to be unsuccessful, all the "recognised" gentry, and many of their idle pupils, exult at the defeat of the rejected party, and in their tumult of joy the lecturers often forget that the rejected person had been their own pupil during more years than he had been of the private teacher during as many months. In other instances, parties who rejoice may be moved in their exultation by even less worthy feelings. A private lecturer, in cases of the rejection of his pupils, is wholly exonerated from blame, unless it can be proved that the competency of the candidate was certified,—either orally or in writing,—previous to his application to the medical boards to be admitted to an examination.

Will *Humanitas*, of Rochester, whose communication was inserted in THE LANCET of Nov. 21st, favour us with his name and address? The one first sent has been accidentally mislaid. Will our correspondent object to his name being communicated privately to a gentleman who is actively interesting himself in an attempt to improve the medical arrangements in the Unions?

The communications from Mr. Way, the K. Street School, and very many other communications, as well as our last reports from the societies, are all unavoidably postponed for a week.

METEOROLOGICAL REPORT.

(*Extract from a Meteorological Journal kept at High Wycombe.*

Lat. 51° 37′ 44″ North. Long. 31° 45″ West.)

Days.	Thermometer.		Barometer.		Rain.	Wind.	Weather.
	Highest.	Lowest.	Highest.	Lowest.	Ins. Dcls.		
Nov. 30	50.50	37.50	28.96	28.86	0.0125	S.E.	
Dec. 1	49.50	38.75	29.12	29.02	—	S.E.	Excepting on the 1st and 6th,
2	45.50	33.	29.35	29.17	0.04375	S.W.	rain every day, with heavy mist.
3	47.50	32.50	29.40	29.37	0.00625	S.E.	
4	39.75	32.	29.68	29.47	0.025	S.W.	The 1st was remarkably fine
5	43.	33.25	29.95	29.88	0.0125	E.	for the season.
6	40.50	32.	29.93	29.88	—	E.	

Dec. 8th, 1835. W. JACKSON.